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Region 4 serving the
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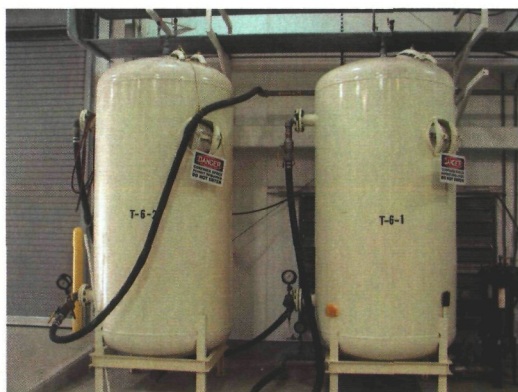
Superfund 3rd Five-Year Review Report Smith's Farm Landfill Brooks, Bullitt County, Kentucky



Leachate Treatment Plant



View Across OU1 Landfill Cap



Granulated Activated Carbon Vessel-
Polishing



Effluent Release Point

Prepared For:
U.S. Environmental Protection Agency, Region IV

Prepared By:
U.S. Army Corps of Engineers, Louisville District

September 2006



10476186

Smith's Farm Landfill
5-Year Review Final Report
September 2006

Third Five-Year Review Report

Final

**Smith's Farm Landfill
Brooks, Bullitt County, Kentucky
September 2006**

Prepared by

US Army Corps of Engineers, Louisville District



for

United States Environmental Protection Agency

Region IV

Atlanta, Georgia



FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site name: Smith's Farm Landfill	EPA ID: KYD097267413	
Region: 04	State: Kentucky	City/County: Brooks, Bullitt
SITE STATUS		
LTRA* (highlight):	Y N	Construction completion date: 9/98
Fund/PRP Lead: PRP	NPL status: since 06/10/86	
Multiple OUs? Y N (but combined influent flows to treatment plant for single remedy)	Recycling, reuse, redevelopment site (highlight): Y N	
Remedy Status: Implementation Complete and treatment plant is operational. There are some recommendations made to issues identified during this review.		
REVIEW STATUS		
Lead agency: EPA, Region 4		
Who conducted the review (EPA Region, state, Federal agencies or contractor): Kari Meier, Chemist and Richard Kennard, Geologist, of the US Army Corps of Engineers, Louisville District		
Dates review conducted: From: 3/01/06 To: 7/30/06		Date(s) of site visit: 3/16/06
Whether first or successive review: Third 5-year Review, 2006		
Circle: Statutory Policy	Due date: 28 Sept 2006	
Trigger for this review (name and date): Five years from the 2001 5-year review.		

Issues:

Some issues were identified. See attached report Section VIII: Current Issues and Recommendations.

Recommendations:

Recommendations are listed in the attached report, Section IX: Recommendations.

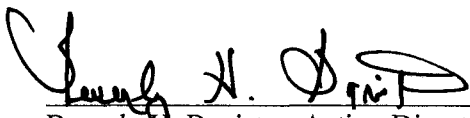
Protectiveness Statement(s):

The remedy at the Site currently protects human health and the environment because the landfill cap is in tact, the leachate treatment system is effective and all residents in the vicinity obtain water from the city, thus eliminating the exposure pathways relative to surface soils, surface water and leachate water. However, in order for the remedy to be protective in the long-term, groundwater monitoring data must be reported and evaluated to ensure that the remedy prevents migration of hazardous substances offsite within groundwater.

Other Comments:

The deficiencies noted during this review are not immediate threats to the protectiveness of the remedy. Once these items are investigated and corrected, long-term protectiveness, operation, and site safety will be improved.

Signature of EPA Regional Administrator or Division Director, and Date



Beverly A. Banister, Acting Director for the Waste Management Division

9/20/06
Date

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LIST OF ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
GPM	Gallons Per Minute
HASP	Health and Safety Plan
KDEP	Kentucky Department of Environmental Protection
KDWM	Kentucky Department of Waste Management
MCL	Maximum Contaminant Level
MSL	Mean Sea Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
RAL	Risk Action Level
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
USACE	U.S. Army Corps of Engineers

EXECUTIVE SUMMARY

The third five-year review of the Smith's Farm Landfill, a Superfund Site in Brooks, Bullitt County, Kentucky State, was initiated 16 March 2006 with a joint site visit by representatives from the U.S. Army Corps of Engineers, Kentucky Department of Natural Resources, MACTEC Engineering and Consulting, Inc., Ford Motor Company, and the U.S. Environmental Protection Agency. The site visit and the results of the combined annual reviews since the 2001 five-year review indicate that the remedy is currently protective of human health and the environment.

There are two operable units (OU1 and OU2) at Smith's Farm. The wastes from the leachate from these two units are channeled to a single leachate treatment system. All elements of the remedy for the site have been completed; the only on-going actions at the site are operations and maintenance activities intended to maintain the integrity of the remedy, and long-term monitoring to evaluate the effectiveness of the remedy. Review of these operable units and facilities revealed the leachate treatment system and landfill cap remedial actions were functioning as designed, and are maintained in an appropriate manner. Deficiencies noted in the previous 5- year review and subsequent annual reviews have been or are currently being adequately addressed. No major issues are currently identified in the treatment system. Minor, low cost issues include vandalism and trespassing on the site by the local community.

The protection of human health and the environment by the remedial actions at the site are discussed below. Both the Health and Safety Plan and the Operation and Maintenance Plan are in place, sufficient to control risks, and are properly implemented.

**SMITH'S FARM LANDFILL
EPA ID: KYD097267413
THIRD FIVE-YEAR REVIEW REPORT**

I. INTRODUCTION AND PURPOSE

A. General

The present document delivers findings from the third Five-Year Review for the Smith's Farm Landfill, conducted March 2006, and is successive to the first Five-Year Review conducted in 2001. During March and April, 2006, the U.S. Army Corps of Engineers, Louisville District (USACE), on behalf of the U.S. Environmental Protection Agency, Region 4 (EPA), conducted a review of the remedy implemented at Smith's Farm Landfill in Brooks, Bullitt County, Kentucky. This report documents the results of that review. The purpose of Five-Year Reviews is to determine whether the remedial action is or will be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, any deficiencies identified during the review will be presented, along with recommendations to address them. This five-year review follows guidance issued by EPA 540-R-01-007, June 2001.

B. Authority

This review is required by statute. Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, implements Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA)). The statute requires five-year reviews "if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure." The five-year review requirement in the NCP applies only to Records of Decision (RODs) adopted after SARA (i.e. after October 16, 1986). Such reviews are referred to as "statutory reviews". Statutory reviews must continue at least every five years until contaminant levels allow for unlimited use and unrestricted exposure.

II. SITE CHRONOLOGY

Table 1 lists the chronology of events for the Smith's Farm Landfill site.

III. BACKGROUND

A. Site Location

The Smith's Farm Landfill is located in Brooks, Bullitt County, Kentucky, approximately 12 miles south of Louisville, Kentucky (Figure 1). The site is located within the Brooks, Kentucky USGS 7.5 Minute Topographic Quadrangle; its approximate coordinates are 38.0375° Latitude and 85.733331° Longitude.

B. Site Description

The 460-acre Smith's Farm Superfund Site is a former hazardous waste disposal area located in Brooks, Bullitt County, Kentucky. Land use in the area is predominantly rural residential, with areas of deciduous forest around the entire site. The site borders forested hills to the north, east, and west and a residential area to the south. In addition, intermittent streams flow along the north-central portion of the site and drain into the Unnamed Tributary of Bluelick Creek (Figure 2) and, subsequently, into Floyd's Fork. The site includes an 80-acre area that was used for un-permitted disposal of drums containing hazardous waste for a period of approximately 30 years. It also includes a 37.5-acre landfill that was permitted by the State for the disposal of inert industrial waste from 1973 to 1989; however, the landfill had been used for disposal of industrial waste since the 1950s. The disposal activities in both areas of the site have resulted in contamination of onsite environmental media.

C. Site History

The Smith's Farm property is very hilly and not suitable for farming or forestry; the hills have steep-sloped sides with little flat area between. The proximity of industries in and around Louisville, and the need of those industries to dispose of their wastes cost-effectively, resulted in the un-permitted and permitted disposal of industrial and commercial wastes in two (2) major areas and several smaller areas at the Site. Some of the Site's ravines served as disposal "ditches" for construction debris, old household appliances, auto bodies, unsalvageable metallic industrial equipment, used tires, used drums, drummed wastes, and un-containerized liquid and solid wastes. The 37.5-acre landfill area, which was composed of a hilly ridge with a ravine on each side, was permitted by the Commonwealth of Kentucky to accept inert industrial wastes from November 1973 to May 1989, although the landfill area had industrial waste placed in it since the 1950. The permit was not in effect continuously and several violations had occurred. The landfill was operated by the property owner, Mr. Leonard O. Smith, Sr., until his death in 1969, and by his son, Harlan Smith, until his death in 1978. The current landfill and property owner is Mrs. Mary Ruth Smith, whose nephew,

Buddy Mobley, has operated the landfill.

In 1984, following several inspections by USEPA and Commonwealth regulatory personnel, an immediate removal of surface drums, which contained hazardous waste, from the un-permitted disposal area was conducted by USEPA. The Smith's Farm Site was added to the National Priorities List in June 1986.

During the 1980's, the landfill owner contracted for the installation of a small leachate collection and recirculation system at the landfill at the insistence of the Commonwealth. Leachate lines of perforated plastic pipe were installed in ditches at the overburden/bedrock interface on the southeastern and southern sides of the landfill. The collected leachate went to a surge/collection tank and then to a large pump from which it was pumped up to the central part of the landfill where it was sprayed onto the surface of the landfill from several vertical plastic pipes. The system was used only intermittently and then, reportedly, was shutdown before the 1990 Remedial Investigation because of air emissions problems and complaints from residents of the mobile home park to the south of the landfill.

Reportedly, also during the 1980's, the landfill operator, in an attempt to dispose of large volumes of scrap wood, set piles of wood debris on fire in the northeast and northwest quadrants of the landfill. Later the operator buried the smoldering wood debris in an attempt to smother the fires. The attempt to smother the fires was not completely successful and over the next few years the operator made subsequent attempts to smother the subsurface combustion by bulldozing the areas. During the 1990 PRP Remedial Investigation, infrared aerial photography indicated thermal anomalies (surface soil temperatures of 75-80 degrees Fahrenheit on a cool morning) existed; one in the northeast and one in the northwest quadrant of the landfill.

In 1988, field activities for the RI/FS were conducted. The RI for the site determined that leachate seeping from the permitted landfill contained several volatile organic compounds (i.e., chlorinated aliphatics, ketones, and monocyclic aromatics) and heavy metals. The unnamed tributary stream sediments were contaminated by extractable organic compounds (i.e., polycyclic aromatic hydrocarbons) and heavy metals attributed to releases from the permitted landfill, as well as the un-permitted drum disposal area. Soil samples collected from a location next to the landfill were also contaminated with extractable organic compounds. The primary contaminants of concern affecting the soil, sediment, ground water, and surface water are: a) VOCs, including benzene, TCE, toluene; b) other organics including PAHs, pesticides, and phenols; and c) metals, including arsenic, chromium, and lead.

The permit for the landfill expired on May 10, 1989. The Commonwealth of Kentucky determined that the permit should not be renewed because (1) a completed permit application had not been received (Kentucky Revised Statutes Section 224.855); (2) hazardous substances had been released from the permitted landfill and therefore remedial action to control the release(s) was required (Kentucky Revised Statutes 224.877); and (3) information required in order for the Commonwealth to re evaluate the permit's renewal would be available only through a Site Study comparable to a

Superfund Remedial Investigation (401 Kentucky Administrative Regulations 47:020 Section 5).

For remediation purposes, the site has been divided into two Operable Units (OU)s, Figures 2 and 3.

D. Enforcement History

Although OU2 and OU1 were initially treated as a separate phases of the investigation and remediation of the Smith's Farm Site, the enforcement activities for both Operable Units have since been combined. During the summer of 1984 general notice letters and information request letters were issued and the search for potentially responsible parties (PRPS) was initiated. During the spring of 1987, RI/FS special notice letters were issued to the PRPS. A 1984 removal, which was conducted at the area addressed by OU1 by USEPA Region IV Emergency Response authorities, is the subject of an ongoing CERCLA Section 107 cost recovery suit. In March 1990, the Department of Justice (DOJ) on behalf of USEPA filed civil action No. C-90-0232-L(M) against the owner and four (4) other PRPs who sent waste to the Site. On February 7, 1992 four (4) of the Defendants filed a CERCLA-based suit against fifty-three (53) other PRPs in U.S. District Court, Western District of Kentucky at Louisville, attempting to recover past, present, and future remediation costs for both Operable Units of the Site. The remediation schedule for the OU1 area was presented in the Remedial Action (RA) phase under a March 14, 1990 Unilateral Administrative Order (UAO) addressed to thirty-six (36) of fifty-seven (57) PRPs and according to a September 30, 1991 Amendment to the September 29, 1989 OU1 Record of Decision (ROD). The UAO was amended three (3) times to incorporate schedule changes due to the accomplishment of the ROD Amendment.

An Administrative Order by Consent (AOC) for a Remedial Investigation/Feasibility Study (RI/FS) of the OU2 formerly permitted landfill, and proximal Site areas, was signed by only one (1) of fifty-seven (57) PRPs on November 9, 1989. The RI/FS was completed in January 1992. Upon completion of the OU2 ROD, USEPA gave the PRPs an opportunity to perform the remedy. If the PRPs refused to perform the remedy as set forth in the ROD, USEPA had the option to order compliance through a Unilateral Administrative Order (UAO) or to conduct the Remedial Design and Remedial Action utilizing Superfund money and later pursuing the PRPs for cost recovery under CERCLA Section 107. Negotiations were unsuccessful, and the USEPA applied the UAO option. Thereafter, a group of PRPs selected a design and the RD was initiated.

Contaminants identified in these areas include: metals, PAHs, PCBs, and VOCs at OU1 and base neutral acids, metals, nitro-aromatics, PAHs, pesticides, VOCs at OU2.

Table 1 outlines the Smith's Farm Site's remedial history for OU1 and OU2

IV. REMEDIAL ACTIONS

A. Remedy Selection:

The site consists of two operable units that have been combined for remedial action/ treatment. Each of them are described below:

1. Operable Unit 1 (OU1), the un-permitted drum disposal area.

A 1989 ROD and a 1991 ROD amendment addressed containment of contaminated soil, sediment, ground water in the surficial aquifer, and drums in the vicinity of the un-permitted drum disposal area, as OU1.

The design of the RCRA Cap and associated components was performed for the 106 Order Respondents in the early 1990's. Remedial action at Smith's Farm OU1 started in May 1993. A final inspection of the construction was performed on September 12, 1995. This date marks the start of the operation and maintenance phase of the project. On January 17, 1996 the final Operation and Maintenance (O&M) Plan was submitted to USEPA Region IV. This plan outlined the ongoing operation and maintenance requirements for the 30-year post-closure period. The operation and maintenance activities for this site include quarterly site inspections, annual site inspections, leachate volume inspections (through October 2000 only), disposal of collected leachate, repairs as required, annual survey of the cap settlement monuments, and annual sampling and analysis of ground water.

2. Operable Unit 2 (OU2), Landfill – used since 1950's, permitted 1973-1989.

The OU2 1993 ROD addressed landfill wastes, leachate, leachate sediment, surface soil, ground water, and surface water associated with the 37.5-acre landfill and other small, outlying areas of contamination onsite. The design of the RCRA Cap and associated components was performed for the 106 Order Respondents in the 1990's. Remedial action at Smith's Farm OU2 started in July 1996. A final inspection of the construction was performed on January 28, 1999. This date marks the start of the operation and maintenance phase of the project. On March 15, 1999 the final O&M Plan was submitted to USEPA Region IV. This plan outlined the ongoing operation and maintenance requirements for the 30-year post-closure period. The operation and maintenance activities for this site include quarterly and annual site inspections, leachate management and treatment, storm event inspections, routine maintenance and repairs, and semi-annual and annual sampling and analysis of groundwater.

The nature and extent of the releases from within the general area of the formerly permitted landfill and the threat to human health and the environment posed by these releases has been determined. The potential for contamination of the deeper ground water by leachate from the OU2 formerly permitted landfill and the OU1 un-permitted drum disposal area has been investigated and has been demonstrated to be insignificant due to the extremely low permeability of the underlying shale geology. Therefore, the

deep limestone aquifer is not being addressed by the selected remedy in this Record of Decision.

B. Remedy Operations

As stated above and in the 1993 ROD, OU2 and OU1 were initially treated as separate phases of the investigation and remediation of the Smith's Farm Site, but since then, the enforcement activities for both Operable Units have been combined. The leachate extraction systems for each of these sites pump into a single facility, for combined treatment. Operable Unit One, authorized by the September 29, 1989, Record of Decision, which was amended by the September 29, 1991, Record of Decision Amendment, addressed the contaminated soils, sediments, surficial aquifer, and drums of the eighty (80) acre unpermitted drum disposal area. Operable Unit Two addresses the thirty-seven and one-half (37.5) acre formerly permitted landfill, the aquifers underlying the landfill, and outlying, small areas of contamination. The contaminated media to be addressed by the remedies at both sites are the landfill wastes, the leachate, the leachate sediments, and surface soils.

For both OU1 and OU2, the remedial action objectives are to reduce or prevent the risk associated with direct exposure of humans and fauna to:

- Landfill waste and contaminated on-site surface soils;
- Contaminated, on-site surface waters and groundwaters;
- Contaminated, on-site stream sediments; and
- Contaminated on-site leachate and leachate sediments.

Based on the Remedial Investigations, and Feasibility Study, the selected remedial actions consist of the following components:

- Excavating and consolidating wastes from the small areas of contamination in the landfill;
- Re-contouring and capping the landfill with a RCRA Subtitle C cap with surface drainage controls and a gas control system;
- Excavating and extinguishing the subsurface landfill fire (OU2 only);
- Installing and operating a leachate collection and multi stage treatment system for the shallow ground water;
- Discharging the treated water to the Unnamed Tributary east of the landfill;
- Installing perimeter fencing, lockable gates, and warning signs;
- Monitoring groundwater OU2 wells semi-annually for five (5) years after construction is

complete and thereafter annually for a period of twenty-five (25) years; and

- Implementing institutional controls, including deed, ground water, surface water, and land use restrictions.

Cleanup technologies used for these operable units are noted by CERCLIS as follows (<http://cfpub.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.ous&id=0402059>):

Technologies implemented at OU1 include: Access Restriction, Fencing, Air Monitoring, Alternate Drinking Water, Permanent Replacement, Cap, Consolidate, Decontamination, Deed Restriction, Dehalogenation (BCD), Dehalogenation (Glycolate), Discharge, Disposal, Drainage Ditch, Dust Suppression, Excavation, High Temperature Thermal Desorption, Hot Water or Steam Flushing/Stripping, Impermeable Barrier, Incineration, Institutional Controls, Land Use Restriction, Leachate Control, Liner, Monitoring, Operations & Maintenance (O&M), Pump And Treat, Residuals Disposal, Revegetation, Slope Stabilization, Solidification/ Stabilization, Subsurface Drain, Surface Drainage Control, Waterline Replacement

Technologies implemented at OU2 include: Air Monitoring, Bioremediation Treatment, Cap, Chemical Reduction/Oxidation, Component Separation, Consolidate, Containment, Deed Restriction, Discharge, Disposal, Dust Suppression, Excavation, Filtration, Flocculation, Impermeable Barrier, Institutional Controls, Land Use Restriction, Leachate Control, Liner, Liquid Phase Carbon Adsorption, Monitoring, Nitrate Enhancement, Operations & Maintenance (O&M), Physical/Chemical Treatment, Precipitation, Pump And Treat, Residuals Disposal, Residuals Storage (Temporary), Revegetation, Slope Stabilization, Subsurface Drain, Surface Drainage Control.

C. Remedy Implementation

The remedial design for the site was started by Law Engineering, now MACTEC, in June 1994. The plans called for sediment removal, placement, and consolidation; construction of the landfill cover system, run-on and run-off controls, gas control system, perimeter fence and warning signs; and Gabion wall improvements to the Unnamed Tributary, leachate collection and groundwater interceptor system, and Leachate Treatment Plant. Construction was substantially completed in September 1998.

The remedial actions at the Smith's Farm Landfill were conducted separately for OU1 and OU2.

D. Performance Standards or Goals

The system was designed, and has been operated, to achieve performance standards identified in the ROD. Effluent guidelines and monitoring requirements were established in meetings and

correspondence with KDEP. Chemical-specific soil cleanup goals for the excavation of outlying areas of contamination are based on achieving cancer risk levels of 10^{-6} , and include PAHs 0.882 mg/kg and pesticides 33.94 mg/kg. Chemical specific cleanup goals for collected leachate and ground water were determined during the remedial design. Discharge limits for treated effluents are to meet the requirements of State and Federal surface water criteria.

Effluent from the system is monitored at the discharge point to the Unnamed Tributary.

E. System Description and Operations

The PRPs have contracted with MACTEC (formerly Law Engineering and Environmental Services, Inc.) to perform overall project management and perform environmental operations and maintenance management activities for the entire site. MACTEC has been the sole O&M contractor for this site to date. The work is being conducted in accordance with the OU2 Site and Treatment Plant O&M Manuals. System description and operations requirements for each component of the site OU2 remedy are described below.

1. Landfill Cover System Description

The landfill cover system at the Site is a composite barrier that was designed and constructed to meet the performance criteria of the ROD. The function of the landfill cover system is to minimize infiltration and maximize clean run-off which will substantially reduce the amount of leachate generated.

Subsequent to placement of waste and contaminated soil within the limits of the landfill, the landfill surface was covered with clean soil fill and terraces formed in preparation for construction of the RCRA-type cap described below.

The ROD required that a RCRA-type cap and cover system be constructed over the limits of the previously permitted landfill. The landfill cover system includes: 1) diversion ditches to divert storm water run-on away from the cap, 2) a groundwater interceptor drain consisting of a geotextile lined, stone filled trench with perforated piping to intercept and divert groundwater away from the landfill, 3) terraces to slow run-off velocities and divert run-off to collection channels, 4) stabilized storm water drainage channels to convey storm water off the cap, and 5) gas vents and gas venting geocomposite to provide controlled gas migration pathways and vent landfill gases.

The purpose of the landfill cover system is to control infiltration of rainwater, to divert surface water from the landfill, and to provide suitable soil in which to develop vegetation. In order to meet these goals, a RCRA-type cover system has been constructed over the former landfill. The system includes mechanisms for surface water management (run-off and run-on control), groundwater management, landfill gas management, and erosion control. These mechanisms act together to provide a stable and effective means of minimizing the production of leachate within the landfill.

The landfill cover was designed to extend beyond the known edge of waste. However, in several areas, the edge of the RCRA-type cover was advanced to a point past the edge of waste to cover known seeps and to improve constructability. The boundaries of the landfill cover are shown on Figure 2. The landfill airspace has been increased by approximately 100,000 cubic yards to accommodate additional contaminated soil and waste. The increased airspace has been limited to the west side of the landfill.

The RCRA-type cover system which includes the following components was constructed over the landfill (see Figure 4 for typical section through the cover and Type A cover edge):

- Compacted fill - To protect geosynthetic cover materials from irregular surfaces of waste and provide adjustment to existing grades as necessary for positive drainage.
- Geomembrane - To block liquids from reaching waste.
- Geocomposite drainage layer - To remove liquids that percolate from the surface and become trapped above the geomembrane.
- Geosynthetic clay liner- To provide a barrier layer.
- Vegetative soil - To support vegetation and prevent erosion of protective soil layers covering the geosynthetics

Following completion of the cover system, the cap and adjacent areas were seeded and mulched.

a. Landfill Cover Maintenance.

Maintenance of the cover system consists of, but is not limited to, the following tasks: Quarterly inspection of the entire cover system including fences and gates, gas control system, surface water drainage and erosion control systems, leachate collection system, infiltration gallery, and access roads; repair of erosion damage, rebuilding and re-grading of settled areas to include general fill replacement, vegetative layer replacement, settlement monitoring, reseeding, mulching and fertilizing; mowing of cap and adjacent areas.

Results of the inspection, including any maintenance performed or required, are recorded on the Quarterly Inspection and Maintenance Form (Appendix E).

Routine inspections of the cover system and surrounding area provide indications of grass growth thickness and overall health. In areas of limited growth, additional fertilizer is used. As necessary, the cap and adjacent areas are to be fertilized in conformance with the project specification and as required resulting from repairs.

The seed mixture was chosen for its low maintenance characteristics; however,

periodic mowing is done by the on site maintenance personnel to maintain a grass cover height of approximately 6 to 24 inches.

The cap and adjacent areas are mowed on a regular basis during the growing season. The grass mowing season usually begins in late April and continues through September. In times of drought and rain, the mowing schedule is adjusted to allow for fewer or additional mowings as the weather dictates.

There are obstacles at the Site which must be avoided during mowing operations. The obstacles include:

- Gas venting system risers, and
- Groundwater monitoring wells

The cap is inspected for burrowing animal dens on a quarterly basis.

The cap is inspected for tree saplings and other vegetation that could damage the integrity of the cover system. The inspections are performed quarterly. Maintenance personnel remove as many of the trees and shrubs as possible, including the root system during inspections and prior to mowing. The site is inspected quarterly for erosion damage. Erosion that occurs on the capped area is repaired according to the specifications detailed in the design documents. Repairs to other areas are evaluated to determine the required repairs.

b. Improvements since Construction

During the first five-year review period following start of construction of OU2, several improvements were made, problems encountered and the corrective actions taken, modifications/additions to the design of the LF cap, leachate collection and transmission, leachate treatment, and disposal system.

As a result of severe rain storms in 1999, a number of erosion repairs were necessary on both OU1 and 2 caps. The more urgent of the repairs were completed in June of that year. Repairs included replacing soil and reseeding in numerous areas on both caps; replacing soil and gravel within the roadway to OU 2 cap; removing soil, gravel and riprap for the roadway ditches and cleaning out the culverts. Primary modifications to the landfill cover system relate to the surface water drainage system.

In calendar year 2000, the construction of drainage improvements on the landfill cap and adjacent areas of Operable Unit Two (OU 2) was completed. The work included:

- Installation of textured HDPE geomembrane for lining of downdrains to toe of landfill slope;

- Construction of concrete-filled cellular confinement system for lining of lower section of downdrains 3 and 4;
- Improvements to designated portions of upper section of main drainage way (MDW), including removal of existing riprap and debris, placement of fill in erosion gullies, re-grading of the MDW, installation of turf reinforcement matting (TRM), and seeding;
- Placement of select soil fill and installation of TRM to repair erosion gullies on the surface of the landfill cap and terraces, including terrace entrances to downdrains and ditches as indicated;
- Re-grading of MDW at access road crossing and construction of concrete-filled cellular confinement system;
- Reconstruction and relining of the southern section of the MDW and adjacent ditch including removal of existing riprap ditch lining and rock structures (rock check dam/spillway and Gabion energy dissipater), placement of soil fill, re-grading of the ditches, re-grading of adjacent slopes, and construction of concrete-filled cellular confinement system for lining of MDW and adjacent ditch;
- Reconstruction of drainage ditch on north side of the landfill cap access road;
- Reconstruction of drainage ditch on south side of the landfill cap access road;
- Repair of landfill cap access road from paved road to top of southwest slope, including placement of specified dense graded aggregate mix for filling of erosion gullies and resurfacing of the road (Photos 10, 11), re-grading of the road surface, (including crowning of road), placement of select soil fill and re-grading of areas adjacent to road, and application of asphalt prime and seal coats;
- Reconstruction of southeastern runoff ditch;
- Reconstruction of drainage ditches in the upper northeast section of the landfill cap;
- Reconstruction of the lower northeast perimeter drainage ditch;
- Repair of access road in the northern upper area of the landfill cap;
- Reconstruction of a defined section of the existing Gabion wall on the west bank of the creek and placement of concrete grout in eroded areas beneath the Gabion wall;

- Removal of accumulated sediment from inside the triple and double culverts under the paved road; and
- Excavation and removal of accumulated soil, rock and vegetation from the various drainage channels and drainage structures.

2. Surface Water and Storm Water Controls

The function of the surface water and storm water controls designed for the cap is to regulate surface water run-on and run-off to, and from, the site during all rain events. The proper operation and maintenance requirements of surface water controls are a major part of the Site O&M Plan.

The purpose of surface water management at the site is to reduce the amount of storm water that makes its way to the landfill waste and to provide stable and adequate conveyance for storm water removal from the site. Therefore, surface water control systems for the site have been established to divert storm water from the surface of the RCRA-type cap and direct it to existing drainage ways. Existing drainage patterns have been maintained wherever possible.

Surface water control systems are shown on Figure 5, Surface Water Drainage/Erosion Control Plan. Design flow is based on the 24-hour, 50-year storm event with a 1.5 factor of safety. This standard has been applied to conveyance structures on and adjacent to the cap, but not to previously existing structures and conduits.

Prior to initial grading activities, interceptor ditches were constructed along the west and north perimeters of the landfill (Ditches 9-10 and 18-19). These ditches were lined with turf reinforcement matting to control erosion and will divert run-off from both the cap and areas outside of the cap to the Unnamed Tributary to the east and to an existing drainage way to the southwest. Additional ditches were constructed south of the southern access road to the cap (Ditch 1-2) and along the south side of the cap (Ditches 3-4 and 4-5). These ditches were also lined with turf reinforcement matting. On the cap surface, collector ditches (Ditches 6-7 and 8-7) carry surface water run-off from the west side of the cap south to the south perimeter ditch. The collector ditches were redesigned during construction due to the modified slopes resulting from revised final grading for increased air space. Turf reinforcement matting and energy dissipaters constructed of stone-filled Gabion baskets were also added to protect portions of the channel affected by slope transition until the sod became established.

On the east side of the cap, surface water flows easterly to the 3H:IV side slopes. Terraces on the side slopes direct the flow to sodded letdown ditches. The sodded letdown ditches carry the flow down the slopes and discharge into run-off ditches (Ditches 11-12 and 21-22) or directly to the Unnamed Tributary. The run-off ditches are lined with turf reinforcement matting and re-vegetative matting, respectively.

In addition, a perimeter toe drain collects water from the cover drainage geocomposite. The toe drain is placed along the south and east sides of the landfill and discharges to the surface ditches.

Improvements have been made to the Unnamed Tributary to ensure that it has capacity for the 24- hour, 100-year storm event.

a. Erosion Control.

The establishment of adequate vegetation is the primary means controlling erosion of the completed landfill cover. Appropriate fertilizer, seed, and mulch have been applied to the final cover as necessary to establish vegetation.

Erosion control measures have been established to protect channels and outlets from the long term high velocities expected due to the steepness of the site. Erosion control for these areas include various ditch lining materials, such as turf reinforcement matting, revegetative matting, and sod; outlet control structures (generally riprap); and Gabions to protect the channel bank of the Unnamed Tributary.

b. Groundwater Diversion.

In areas where the ground surface slopes toward the landfill boundary, a groundwater interceptor drain has been established consisting of a perforated HDPE pipe in a gravel trench. These areas occur along the south, west, and extreme north limits of the landfill as shown on Figure 6, Leachate Collection Plan. The groundwater interceptor discharges at the ground surface at two points: the extreme northeast and southeast corners of the landfill. The discharge points are protected by riprap aprons.

During the construction phase, approximately 1,000 feet of the groundwater interceptor was eliminated on the southwest side of the landfill as excavation of road cut for landfill access showed the last 1,000 feet to be unnecessary due to dense shale in the area. The groundwater interceptor now discharges to the perimeter storm water collection ditch at a higher elevation.

Maintenance to the surface water and storm water controls consists of the following tasks:

- Quarterly inspection of drainage channels and berms, repair or replace as necessary. The Quarterly Inspection and Maintenance Form (Appendix E) is used to record the results of the inspection.

- Repairs include, but are not limited to, removal of debris, saplings, trash, and silt build-up from channels, replacement of rip-rap and rebuilding of diversion berms.

3. Passive Gas Venting System

The purpose of the composite cover system is to minimize the movement of liquids into the waste, however, composite cover systems may also trap gases formed under the cover by the natural decomposition of organic materials or from volatilization or chemical change of other contained wastes.

A passive gas venting system has been designed and constructed in the cover system to prevent damage to the cover. The system consists of vents located in the interior of the landfill to release the majority of the accumulated gases and around the perimeter of the landfill to prevent gases from migrating off-site through the subsurface. In addition, a geocomposite was placed beneath the geosynthetic clay liner along the terraces within the landfill limits and in other areas to aid in the movement of gas towards the vents.

Gases which migrate towards the surface will migrate to the vents and be released to the atmosphere. The vents are spaced at approximately one per acre. Vent spacing has been determined, in part, by locations of proposed terraces. Where possible, vents were constructed on terraces, near the front edge, for ease of access. The approximate location of the gas vents are shown on Figure 7, Gas Control Plan. See also Photo 9 for a typical installation.

Limited maintenance is conducted on the passive gas collection system. Vents are inspected for damage and clogged, exposed piping; ponded surface water or vegetative soils settlement; and conditions of surrounding vegetation, however, MACTEC and the operator indicated that no methane readings have been, or are currently, collected and recorded.

4. Leachate Collection, Extraction, and Transmission System

A perimeter leachate collection trench was constructed during the RA to collect leachate generated within the landfill. In addition, five leachate extraction wells were constructed within the landfill to collect leachate in suspected low points. Both the perimeter leachate collection trench and extraction wells direct the leachate to a lift station constructed for pumping the leachate to the treatment plant. The function of the leachate collection and conveyance system is to collect and convey the leachate from the extraction wells and seep locations along the toe of, and within both the OU1 and OU2 landfills.

Extending from the southwest corner of the landfill to the northeast corner of the landfill is a perforated 6-inch diameter high density polyethylene (HDPE) leachate collection line. The leachate collection line rests in a 2-foot wide trench extending at least 3-feet into shale. The leachate collection line is surrounded by non-calcareous stone which is wrapped with

geotextile. Leachate emanating from the landfill is collected by this line and flows by gravity into a 6" x 10" dual-contained HDPE pipe where it flows by gravity to the leachate lift station where it is pumped to the treatment plant through a 3" x 6" dual-contained HDPE pipe. This dual-contained pipe consists of an inner pipe carrying the leachate enclosed by an outer pipe to contain accidental releases of leachate.

There are also five (5) extraction wells located on the landfill cap. Each extraction well contains an air-driven pump which pumps perched ground water and leachate from the landfill where it flows by gravity (from four (4) extraction wells, and under pressure from one (1) extraction well) to the leachate lift station and continues to the treatment plant through the 3" x 6" dual-contained pipe. Piping from the extraction wells to the leachate lift station is also dual-contained HDPE. Subsequent to collection, the leachate is pumped to the treatment plant via a double-contained piping system. Figure 6 illustrates the location of the OU2 collection, and conveyance system. Figure 8 shows the leachate collection, pumping, and transmission system from the OU1 landfill to the OU2 Leachate Lift Station.

Accidental releases of leachate within the inner pipe of the dual contained piping flows by gravity along the outer pipe to leachate detection points. The leachate detection points consist of a 3-inch HDPE "Tee", stubbed 90-degrees from the outer portion of the dual-containment pipe. A 3-inch HDPE riser runs from this "Tee" to a flanged cap 6-inches above final grade. These leachate detection points are located between manholes. When the flanged cap is removed, an inspector can look down the 3-inch HDPE riser for visual evidence of leachate leaks within the dual-contained piping system. The Site Operation and Maintenance Manual requires all leachate detection points be inspected quarterly.

The five leachate extraction wells (Photos 12, 14), equipped with air-driven extraction well pumps, extract leachate into the perimeter leachate collection line. This perimeter collection line conveys leachate by gravity to the Leachate Lift Station. Leachate collected from OU- I is pumped through a force main from OU- I (Photo 19) to the Leachate Lift Station. Submersible pumps in the Lift Station then pump the leachate to the treatment plant.

a. *Perimeter Collection Trench.*

The perimeter leachate collection trench was constructed along the east and south sides of the landfill cap to intercept leachate flowing along the soil/bedrock interface, as well as from within the landfill waste. Leachate will flow by gravity through the trench before discharging into the lift station. The perimeter leachate collection system was constructed of a single-wall, perforated, HDPE pipe within a stone and geotextile envelope. Cleanouts are provided along leachate collection and transport lines for ease of maintenance. In addition, interceptor trenches have been constructed to connect known leachate seeps with the perimeter leachate collection trench.

b. *Extraction Wells.*

One extraction well was constructed in each of five areas estimated to be topographic low points, based on estimated pre-landfill topography. Due to elevations estimated from the pre-landfill topography, leachate and/or groundwater accumulating in the low points would not be expected to flow into the perimeter leachate collection system. A combination of gravity lines and force mains were constructed to convey the leachate recovered from the wells to the lift station through double-wall pipes located above the geocomposites and at least three feet below final grade. Note: Recovery Well Number 5 was permanently inactivated with USEPA's concurrence in April, 1999.

c. Lift Station.

A lift station (Photo 6) was constructed immediately adjacent to the southeast corner of the landfill to pump leachate recovered from the collection trench and extraction wells to the leachate treatment plant. The lift station has a retention storage capacity of approximately 1,000 gallons; two 30-gallon per minute (gpm), explosion proof pumps; and the necessary level controls to transfer the leachate to the sequencing batch reactor (SBR) in the treatment plant.

d. Improvements since Construction

During the first five-year review period following start of construction of OU2, several improvements were made, problems encountered and the corrective actions taken, modifications/additions to the design of the LF cap, leachate collection and transmission, leachate treatment, and disposal system.

Subsequent to those modifications made in 2000, an east to west OU1 leachate conveyance system was constructed to eliminate high trucking costs to transport this material to the primary lift station. The improvement consisted of the installation of submersible pumping, level controls, valves, fittings, piping and accessories at the underground leachate storage tanks; installing approximately 2,600 linear feet of dual containment HDPE force main, fittings and appurtenances, and electrical work for routing of leachate from the existing underground leachate storage tanks at Operable Unit One (OU 1) to the existing leachate lift station at Operable Unit Two (OU 2). The plan is shown in Figure 8.

5. Leachate Treatment System

The treatment plant has been constructed at the site as part of the remedial action of the Smith's Farm OU2 Landfill. Leachate recovered from the Smith's Farm OU1 and OU2 Landfills is treated by a combination of chemical and biological processes. This treatment reduces heavy metal and organic constituents so the treated leachate stream can meet the applicable discharge requirements. MACTEC and the operator indicate that no

improvements or major repairs have been made since construction. Minor changes (non-specified) in operating procedures are constantly reviewed to enhance LTP performance.

The treatment system contains the following components and unit processes

- **Biological Treatment Unit** - A packaged Sequencing Batch Reactor (SBR) system biologically degrades the organic constituents in the leachate (Photo 30, 31).
- **Metal Removal (MR) Unit** - A package system uses caustic and polymer to precipitate metals from the leachate and acid to neutralize the supernatant liquid (Photos 33).
- **Sludge Dewatering Unit** - A filter press removes water from the sludge generated by the SBR and MR prior to sludge disposal (Photo 36).
- **Air Stripping** - A low profile air stripper removes the remaining air strippable organics from the leachate stream (Photo 34).
- **Bag Filters** - A pair of bag filters operating in parallel removes particulate carryover from the air stripper to reduce plugging in the granular activated carbon filters.
- **Carbon Polishing** - A granular activated carbon filter removes the remaining traces of organics from the leachate stream prior to discharge to the Unnamed Tributary (Photo 35).

a. Sequencing Batch Reactor.

Recovered leachate is treated biologically to remove organic compounds in a sequencing batch reactor (SBR) (Photos 30, 31). Leachate is fed into the reactor where it is held for a specific period of time for biological treatment. The addition of oxygen and other nutrients, and the presence of the organics in the water promotes the growth of bacteria. These bacteria consume (biodegrade) the organics over time. The SBR process, which is a time/level controlled process, normally follows the basic steps of fill, react, settle, and decant.

The SBR packaged system consists of one reactor. The maximum design treatment capacity of the SBR is 28,800 gallons per day (or 20 gpm). Flow to the reactor is automatically shut off and diverted to the infiltration gallery when the high-high level switch in the SBR has been activated. Actual average leachate flow rate from both operable units is approximately 3 gallons per minute.

Operation of the reactor is automatically controlled by a process controller with high and low level switches. The initial high and low levels as well as internal controller settings (internal cycle times, aeration frequency and duration times, etc.) are specified and preset by the SBR supplier.

Each reactor cycle will produce sludge. The sludge is automatically pumped by a waste activated sludge pump into the sludge thickening tank (T-8-1). This process called sludge wasting is expected to occur during each reactor cycle. Sludge wasting occurs during the decant phase, with the duration automatically regulated by the process controller. The volume of sludge generated is dependent upon the amount of suspended solids(TSS), biological oxygen demand (BOP), and chemical oxygen demand (COD) present in the influent to the SBR system. Sludge solids are processed by the plate and frame filter press.

b. *Metals Removal (MR) System.*

The packaged metal removal unit (Photos 33) uses pH adjustment, flocculation, clarification, and sedimentation to reduce the concentration of metals in the leachate. The system consists of a large tank which is divided into a flash mixing zone, a flocculation zone and a clarification zone. In addition, the system utilizes three chemical sources: a 20 to 50 percent concentration sodium hydroxide storage tank (T-2-1-1), a 50 percent concentration sulfuric acid storage tank (T-2-1-3), and an anionic polymer day tank (T-2-1-2). The design throughput of the MR system is 28,800 gallons per day (or 20 gpm).

The metals are removed by raising the pH of the leachate to approximately 9.5. At this pH, the metal constituents become insoluble and form metal hydroxide compounds. These hydroxide compounds settle to the bottom, which allows them to be separated from the clarified water.

Based upon treatability testing, it is anticipated that only sodium hydroxide addition is needed to initiate the precipitation, flocculation and sedimentation of metals. The addition of polymer promotes more efficient settling by creating larger floc particles. From the first mixing chamber, the leachate overflows to the second mixing chamber where, during the slower mixing, an insoluble metal precipitate (floc) forms. Polymer is then added and mixed using a variable speed mixer to enhance large, heavy floc particle formation. The liquid and floc overflow into a clarifier where the heavy floc material settles to the bottom. The clarified liquid overflows to the third mixing chamber where final pH adjustment is performed using 50 percent sulfuric acid. The effluent pH will be controlled within the range of 6 to 9. After final pH adjustment, the treated leachate flows to the low profile air stripper feed tank. The solids that are collected in the bottom of the clarifier are periodically transferred to the sludge thickening tank (T-8-1) for dewatering.

Once the system is started and the pH adjusted at various stages of the process, the level in the clarifier and the volume of sludge removed are controlled by the Programmable Logic Controller (PLC).

c. Low Profile Air Stripper.

The low profile air stripper (R-4-1) (Photo 34) is a packaged unit that uses air-water contacting to transfer volatile organic constituents from the influent water stream to the air stream. This contacting is accomplished on a series of aeration trays within the air stripper unit. Effluent from the MR system flows to the air stripper feed tank (T-3-1), which acts as an equalization tank to ensure a relatively constant flow to the air stripper. Effluent water from the air stripper is pumped to the carbon vessels (T-6-1 and T-6-2) for final polishing before discharge.

The low profile air stripper has a modular design capable of accommodating several aeration trays. The design allows the trays to be easily removed, cleaned, and replaced with minimal downtime. The design flow rate of the unit is 20 gpm.

The water enters near the top and flows horizontally across each tray and through a weir to the tray below. A pressure blower provides air for the aerating process. The air enters the bottom of the unit and is forced through openings in the trays, bubbling through the water to form "a surface of foam" which provides extreme turbulence and excellent volatilization. The overall effect is a multiple counter-current contact of water and air, with each tray having a cross-flow of water opposing a vertical flow of air. The effluent air stream does not require any treatment and is vented outside the building.

d. Sludge Thickening Tank.

This tank is used to store and further thicken the sludge generated from both the SBR treatment process and the MR system.

The sludge thickening tank (Photo 32) provides the operator the ability to decant water from the settled sludge. Excess water in the sludge thickening tank is decanted when there is sufficient sludge volume to dewater (the tank should be at least half full). Decant valves at several liquid heights are used to decant the excess water. An 8-inch length of clear pipe, installed downstream from the decant valves, allows the operator to see when sludge is encountered so that the operator knows when to stop decanting. The decant water is discharged to the building sump where it is then pumped back to the SBR inlet. The decanting process thickens the sludge and reduces the volume of material to be dewatered. The sludge thickening tank is designed to increase the solids content of the sludge to approximately 2.5 - 4 percent solids by weight. The sludge is thoroughly mixed in the tank and the material is pumped to the filter press.

e. Sludge Dewatering System.

The sludge dewatering system consists of a packaged filter press unit (Photo 36). The

filter press consists of a number of polypropylene plates, each of which is covered with a polypropylene filter cloth. Diatomaceous earth is added to the filter cloth (as a pre-coat) before the thickened sludge is introduced to the unit. The filter plates are pressed together hydraulically and the sludge is pumped through the unit. Sludge is retained by the filter cloth and water is forced out through small holes in the press plates which direct the water out of the unit. The sludge is then removed by manually scraping it off the filter cloths at the completion of the press cycle. The filtrate water is directed to the building sump for further treatment. The filter press utilizes a fully automatic hydraulic closure system mounted on the filter press assembly. The hydraulic closure system consists mainly of a electro/hydraulic power unit, a double acting hydraulic cylinder and a hydraulic control.

The electro/hydraulic power unit is designed to open the press, close the press and maintain sealing pressure while feeding sludge at pressures up to 100 psi gauge pressure. The hydraulic control system is integrated into the filter press control panel and controls hydraulic pressure with a contact pressure switch with two snap-action contacts.

Compressed air is blown through the filter press at the end of the filtering process to purge the feed lines and dry the filter cake. The filter cake is then discharged into a hopper where it is collected prior to disposal at an approved facility. Toxicity Characteristic Leaching Procedure (TCLP) testing of the dewatered sludge is performed to determine regulatory status, i.e. whether it is classified as hazardous or non-hazardous waste for purposes of disposal.

f. Carbon Adsorption.

The carbon adsorption polishing system consists of two steel vessels filled with granular activated carbon (Photo 35). Each carbon vessel is sized to treat a maximum flow rate of 75 gpm. The design flow rate of each vessel is 20 gpm. The carbon vessels are also capable of operating in either parallel or series should additional capacity or reduction in effluent concentration be required. Standard operating procedure at the Smith's Farm OU2 Landfill is to operate the carbon vessels in series. Periodic sampling of the effluent from the primary vessel monitors for breakthrough of organic constituents (which means the carbon no longer removes the constituents to non-detect levels) exiting the first vessel. When breakthrough occurs, the plant operator switches flow to the secondary vessel which becomes the primary vessel and calls the carbon supplier for replacement of the spent carbon vessel. The primary purpose of the system is to remove residual organic compounds in the treated leachate leaving the low profile air stripper. The system is designed to operate 24 hours per day with a pH between 6.0 and 9.0, and water temperature ranging from 50 to 68°F.

g. Instrumentation and Controls.

The following section identifies the various instrumentation and control hardware associated with each major section of the leachate extraction and treatment system.

Main Control Panel - Extraction wells EW-1 through EW-5 are air-driven and are enabled from the Main Control Panel (MCP) via solenoid valve FV-7-1. With hand switch HS-7-1-3 in the Auto position, the extraction well pumps continuously pump to the lift station sump. The Main Control Panel (MCP) provides monitoring and control functions for the leachate collection and treatment process in the treatment plant. An industrial computer on the MCP displays, in graphic format, the status of the treatment plant equipment. Graphics are color animated and follow the process and instrumentation diagram (P&ID) format. The industrial computer communicates with the Programmable Logic Controller (PLC) in the MCP on a real time basis and receives updates on the process.

An auto dialer is provided in the MCP that receives three alarm status conditions for MR chemical feed systems low level; Sludge thickening tank high level; and common process alarm.

The auto dialer is programmed to deliver these alarms to the plant operator's telephone number and the assistant operator's telephone number.

The MCP has motor starters, on-off-auto hand switches and "on" indicating lights for MR Feed Pump, Air Stripper Feed Pump, Air Stripper Sump Pump, Air Stripper Blower, and Building Sump Pump.

Alarm lights indicate conditions for the most of the process equipment. Additional indicators without alarms exist for the SBR reactor basin, SBR effluent tank, leachate lift station sump, and air stripper feed tank (high and low levels). PID controllers are provided for the flow control valves and flow meters associated with the MR feed and the air stripper effluent flow rates.

h. Leachate Treatment Maintenance and Recording.

The Plant Operator is expected to be on site three days per week (M, W, and F). Each day the operator visits the site, the normal maintenance activities associated with the equipment is performed. A daily report is prepared each day the operator is present, a separate log book is kept on all maintenance activities.

SBR - General maintenance includes: service all pumps, aeration devices, motors, actuators and valves in accordance with manufacturers recommendations provided in the Equipment O&M Manuals; check for unusual oil leakage from associated equipment; verify that all associated equipment (pumps, aeration devices, decanting

mechanisms, level switches, etc.) are operable; check controller for proper timer and counter adjustments; verify proper operation of the nutrient feed systems and change out feed drums as necessary; remove any debris floating on the surface of the water in the reactors; hose down the sides (inside) of the reactors to remove any residues; inspect tanks for leaks.

MR System - The normal maintenance activities associated with the MR system performed 3 times per week include: servicing all process pumps, metering pumps, and motors; checking the operation of the mixer in the flash mix chamber and flocculation chamber; checking on the floc formation and settling rates in the clarifier; checking on the quantity of sludge generated and sludge blowdown schedules; checking on the timed sequence for sludge removal from the treatment system; manually removing light end material which may float to the top of the clarifier; and inspecting the MR system for leaks.

Air Stripper - The normal maintenance activities associated with the air stripper performed 3 times per week include: service all process pumps, motors, gaskets, and blower; checking the flow rate, influent and effluent pH, and temperature of the water; inspect the unit for leaks; checking for unusual oil leakage from associated equipment; verifying that all associated equipment (pumps, blower, level switches, etc.) are operable; checking pneumatic pressure drop and air flow rate for signs of inefficiency or clogging of the holes in the trays.

Sludge Thickener - The normal maintenance activities associated with the sludge thickener performed 3 times per week include: service all pumps and motors; checking for unusual oil leakage from associated equipment; verify that all associated equipment (pumps, decanting mechanisms, etc.) are operable; remove any debris floating on the surface of the water in the sludge thickener; hose down the sides (inside) of the sludge thickener to remove any residues; inspect tanks for leaks; decant supernatant and pump sludge to filter press as needed.

Sludge Dewatering System - The normal maintenance procedures associated with the filter press during regular operation performed 3 times per week includes: checking the level in the hydraulic fluid reservoir; checking the filter cloths for blockage and tearing; checking adjustments of the pressure control valves, flow control valves, pump regulators, and signaling devices; checking for external leaks, damage and unusual equipment noise.

Carbon Filter - The primary maintenance required by the carbon filters is the replacement of the carbon in the vessels with fresh carbon, the flow routing changes associated with this procedure, and periodic checks for tank and piping leaks.

Operational and Maintenance Logs, Records, and Reports - A daily "Operations and Maintenance Routine Check" is utilized to ensure that necessary observations and tasks are completed during each visit to the plant. The checklist is based on the equipment and processes in the plant system. In addition to the routine checklist, the Operator maintains a log book for entering routine and unusual operating conditions encountered in operating the plant system. The daily log is maintained in a journal with sequentially numbered pages. All entries are initialed by the operator making the entry. The log book is also used to record any changes in the operation of the treatment system.

Records of service, maintenance and repair indicate the downtime and cost required to perform the work. This information is used to develop historical data vital for planning purposes. Records are also used to find recurring trouble areas where improved maintenance or other appropriate action may be required. The following records are used in controlling and evaluating the total maintenance program including preventive and corrective tasks: Equipment Data Manuals, Service Records, Motor Service Records, and Spare Parts Records.

On-Site Analytical Data - The analytical program is designed to provide the Operator with data on which to base operational decisions. Routine analyses are run on-site by the plant operating staff. A table has been prepared which presents the sampling groups, the analysis to be performed, the recommended frequency of analysis and the analytical methods to be used.

Results of all analyses performed are recorded on a daily basis in a summary form to provide a convenient single source of plant operational data. These summary sheets are bound and filed in the permanent plant files. Work sheets used while running analyses are kept as part of the permanent plant records. These sheets are dated and the complete identification of each sample included with the calculations. All calculations are signed by the person performing the analysis.

Data is input into a database or spreadsheet on a daily or routine basis. This allows the data to be sorted by analytical parameter, date, sampling location, etc. Spreadsheets are sent to Mactec in order to prepare summary reports which are needed for the plant permanent files and for reporting to the Kentucky DWM and USEPA.

i. Groundwater Monitoring Network.

Groundwater monitoring at Smith's Farm's OU2 is conducted as required by 401 KAR 34:060 sections 10 and 11 and to support the effectiveness and integrity of the remedy liner. As the shallow groundwater at the soil/bedrock interface is directly affected by the infiltration of storm water, the shallow wells may be dry during or

following periods of low rainfall. Since the flow of leachate is also along the soil/bedrock interface, the primary mechanism of contaminant migration usually ceases or diminishes during periods of dry weather.

Selection of Existing Groundwater Monitoring Wells - The groundwater monitoring program included collecting and analyzing groundwater samples from monitoring wells screening two distinct groundwater layers: shallow groundwater ranging from approximately three to ten feet below the ground surface and deep groundwater from within the New Providence Shale and the New Albany Shales at depths ranging from 26.5 feet to 225 feet below the ground surface.

It was determined that groundwater monitoring wells MW-16, MW-18, MW-19, MW-22A, MW-22B, MW-24A, and MW-24B, which were installed prior to the OU2 RA, would be utilized as part of the groundwater monitoring system. Monitoring wells, MW-1 through MW-8, MW-17, and MW-20 were decommissioned by American Environmental during the OU2 RA. Monitoring wells MW-23A and MW-23B, originally protected during construction, are no longer being used for monitoring.

Installation of Groundwater Monitoring Wells - To monitor the flow directions and constituents within the groundwater in the vicinity of OU2, seven Type II groundwater monitoring wells were installed. Six of the groundwater monitoring wells (MW-25 through MW-30) are located around the perimeter of OU2 in locations believed to be pre-landfill topographic valleys, and the seventh monitoring well (BG-1) is a background monitoring well located upgradient from OU2. The locations of these groundwater monitoring wells are depicted in Figure 9. The monitoring wells were constructed in accordance with the Well Installation and Initial Monitoring Plan dated June 1996 using a four-inch inner diameter (ID) stainless steel riser with five-foot screened intervals across the soil/bedrock interface to allow monitoring of the shallow groundwater. Continuous-wrap screen was used to allow for the future modification of the monitoring wells to recovery wells, if needed. The filter pack for each well was installed extending from the boring termination depth to one foot above the well screen. After installing the filter pack, each well was surged with a surge block for approximately five minutes. Then the depth to the filter pack was checked and, if necessary, more filter sand was added. The filter pack was sealed with a two-foot thick bentonite seal and the monitoring well completed with grout extending from the bentonite seal to the ground surface. Well protection for each well includes a concrete well pad, a locking steel protective casing, and three-bumper posts around the perimeter of the well pad. The newly installed monitoring wells were considered developed after removing a minimum of five well casing volumes and when the pH, conductivity, temperature, and turbidity stabilized.

Groundwater Monitoring Procedures - Four groups of groundwater monitoring wells are used to monitor the groundwater around the perimeter of OU2 on an annual or semi-annual basis.

The groups are defined as follows:

- *Group A:* MW-3 through MW-8 and MW-11 through MW-15; Type II monitoring wells located in the immediate vicinity of OU I.
- *Group B:* MW-25 through MW-30 and BG-1; Type II monitoring wells located in the immediate vicinity of OU2 that screen the soil/bedrock interface
- *Group C:* MW-22A, MW-22B, MW-24A, and MW-24B; Type III and Type IV monitoring wells located in the immediate vicinity of OU2 that screen the New Providence shale and the New Albany shale
- *Group D:* MW-18 and MW-19; Type II monitoring wells located downgradient of OU2 near the Unnamed Tributary that screen the soil/bedrock interface.

Group A wells are used for release detection in OUI, while Group B are used for release detection in OU2. Group D wells are sampled to monitor the groundwater down gradient of OU2 in the vicinity of the Unnamed Tributary, if a release is detected in Group B. Table 2 presents the intended monitoring schedule for the groups. Presentation of this data is necessary to report on the effectiveness of the landfill liner and treatment facility. Data has not historically been presented to report on these parameters. Presentation of this data in tabular form and spatially represented in a plot plan is thus recommended in this 5-year review.

k. Discharge Requirements.

The treatment plant is not operated under a National Pollutant Discharge Elimination System (NPDES) permit. However, the plant is required to meet certain discharge guidelines which have been determined in concert with the U.S. EPA and the Kentucky Department of Environmental Protection, Cabinet for Natural Resources and Environmental Protection. The treatment plant discharges to the Unnamed Tributary which eventually discharges off-site into Bluelick Creek. Effluent discharge criteria for the treatment plant are shown in Table 3.

6. Deed Restrictions, Land Controls, Perimeter Fence

As stated in the 1993 ROD, "the future use of the land surrounding the Smith's Farm property is expected to be residential. The very knobby, hilly topography could not easily

support commercial development. Additionally, structures built in slopes or on hilltops would have to be anchored into the bedrock and structures built in the ravines would be subject to washouts during very heavy rains. The Smith's Farm property contains two major hazardous waste disposal areas. While the remaining Smith's Farm property may be available for residential or commercial development, this Record-of-Decision calls for deed restrictions, groundwater-use and land-use restrictions which will, along with the proximity of two hazardous waste disposal areas, tend to retard development." Later, the document states, "The landfill and the immediate area around the landfill shall not be utilized for residential or commercial building due to the continued presence of hazardous contaminants on-Site and the probable settling and subsidence of the landfill."

The purpose of the fence and gate is to control access and prevent the entry of unauthorized persons onto the site. A six foot high, galvanized steel fence topped with three strands of barbed wire has been installed around the perimeter of the site. Warning signs have been placed on the fence at approximately 300 foot intervals. The fence is typically placed within the property boundaries.

Maintenance of the perimeter fence, attached warning signs, gates and gate locks consists of repairs necessitated by damage from vandalism, accidents and/or normal wear and tear. A quarterly inspection is conducted to determine the integrity of the fence and the required maintenance. The inspection is performed by walking the perimeter and noting any necessary repairs. The Quarterly Inspection and Maintenance Form (Appendix E) is used to record the results of the inspection.

F. Summary of Continuing Operations and Maintenance/ Inspections and Reports

Operation and maintenance of the site is being conducted in accordance with the O&M Plans for the landfill and treatment plant. System operations requirements for the Smith's Farm Landfill include:

- Mowing the cap as necessary, inspection of the landfill cap and quarterly inspections of surface drainage system;
- Quarterly inspections of the pumping operations;
- Quarterly monitoring of leachate treatment influent, air stripper effluent, and effluent;
- Ongoing maintenance of the landfill cap; leachate collection/extraction and transmission system;
- Ongoing maintenance of the Leachate Treatment Plant (LTP)

Cap system maintenance has generally been limited to routine mowing, periodic weed control and woody vegetation removal, fence repair, rodent control and

occasional repair of stressed or eroded areas.

V. PROGRESS SINCE 2001 REVIEW

Statutory based reviews of the operation, maintenance, and functioning of the landfill cap, leachate collection and transmission system, leachate treatment system, and discharge/disposal system should continue until the USEPA makes a written determination that further reviews are unnecessary to ensure protectiveness. This is the Third Five Year Review. As such, the progress from the first review is evaluated in the following sections.

A. Protectiveness Statement From Last Review:

Based on the 2001 Five-Year Review, the following conclusions were drawn under the "Protectiveness Statement":

- The remedy at the Site currently protects human health and the environment because it eliminates the exposure pathways relative to surface soils, surface water and leachate water in the short term.
- The landfill cap is effective at containing contaminants through preventing the infiltration of storm water and preventing direct contact or exposure of landfill waste by humans and fauna.
- The leachate collection and transmission system prevents migration of hazardous substances offsite or to streams or groundwater.
- The leachate treatment system is effective in meeting the discharge limits established by the USEPA and the State of Kentucky for the site contaminants.

Statements in the 2001 5-year review suggested that in order for the remedy to be protective in the long term, the following actions need to be taken:

- enforce deed restrictions; and
- verify migration prevention to determine whether or not the leachate capture system is successfully preventing migration off site

B. Status of 2001 Recommendations and Follow-up Actions

In the 2001 five year review, none of the following deficiencies were sufficient to warrant a finding of "not protective" as long as corrective action is taken. There were no indications of early potential failure. In each section, the issue in the last review is restated, and is followed by the current status of those conditions:

1. Landfill

2001 Issue:

Overall, the large eroded areas stressed or areas of stressed vegetation that were noted in the previous five-year review have reduced in size. Some small areas remain. There are also isolated instances of rodent tunneling beneath the surface cover.

2001 Recommendation:

- *Corrective actions should be conducted to repair several small areas of localized erosion or rodent penetration to the OU2 cap.*
- *Corrective actions should be conducted to repair several small areas of localized stressed vegetation.*
- *Gaseous emissions from the venting system should be monitored quarterly to report on the decomposition and decline of contained contaminants over time.*

2006 Status:

Corrective actions to repair small areas of erosion and localized stressed vegetation were evident. Vegetation had thickened on the caps. There are still some small isolated areas of stressed vegetation or erosion that will need continuing care, but no major areas of stress.

There have been no efforts to monitor the gaseous emission from the venting system, and there are no plans present. Action will be recommended again in this 2006 report.

2. Leachate Collection and Transmission

2001 Issue:

Influent samples for each operable unit should be taken and analyzed quarterly until a trend can be established. The need for treatment may diminish over time and eventually meet discharge standards with less aggressive treatment.

During the site visit in 2001, Law stated that the treatment system had not experienced any discharge limit concentration exceedences except for two occasions in November, 2000 when excess sludge build up in the metals precipitation unit caused abnormally high concentrations of VOC's to be released from the sludge, subsequently traveling through the plant. This situation was corrected. Mr. Bocarro (of Law) stated that most of the on-going, day-to-day tasks and activities were operating adequately and the facility was being operated in accordance with the Revised September 1, 1999 Operation and Maintenance Manual.

2001 Recommendation: No recommendation.

2006 Status:

Influent concentrations have been included in tabular form. Semi-annual effluent monitoring is also reported in the annual reports. The data has not been presented graphically to provide a conceptual site model of treatment performance with time. This is recommended for the future. Also, according to some of the data presented, the measurements have not been able to accomplish low enough detection limits to definitively state discharge is below the KPDES requirements for some of the identified constituents. Many of the KPDES constituents identified are established at 5 mg/L allowed, (Table 7). The detection limits should be investigated for future effluent monitoring.

3. Groundwater Migration Monitoring

2001 Issue:

The monitoring data were inconclusive regarding containment of the plume. The three rounds of data reviewed varied significantly, and were inconclusive regarding migration prevention when compared with background concentrations. The contaminant concentrations need to be reevaluated annually and plotted on a site map as part of the annual report to determine if the leachate capture system is successfully preventing migration off site.

The ROD requires deed restrictions be implemented to eliminate the possibility of wells being installed within the vicinity of the landfill. This was not evident in the document review.

A local quarry is located nearby. Blasting is a common occurrence, and has been suspected of altering the groundwater flow conditions in the fractured bedrock. Evaluation of the impacts of blasting operations should be done to ascertain if these activities could compromise the remedy.

2001 Recommendation:

Due to the dense clay, shale and limestone subsurface features characteristic of the site, the deep limestone aquifer has not been addressed by the selected remedy. Blasting at local quarry has previously been noted to be a common occurrence, and has been suspected of altering the groundwater flow conditions in the fractured bedrock. Evaluation of the impacts of blasting operations should be done to ascertain if these activities could compromise the remedy.

2006 Status:

No evaluation has been performed to date to determine if impacts of blasting operations at

the nearby quarry could compromise the remedy.

Groundwater monitoring is still inconclusive with regards to plume concentrations versus time. Reports have not been generated to define spatial extent of contaminants within the landfill. Groundwater monitoring has not been reported to show site wide plume concentrations and variability of contaminant extent within the landfill, as compared to design values. A monitoring recommendation is carried over in this review, not in reference to the blasting at the nearby quarry, but as a documentation of contaminant decomposition and change over time within the landfill.

Operators show there are 3-4 samples collected periodically for the entire area. The schedule as defined above has not been adhered to, since many of the collection wells are passed over during dry periods. The inability to collect groundwater samples during dry periods has until now not been construed as a problem, since previous investigations have suggested the exposure of groundwater to leachate is insignificant due to the periodical exposure. The purpose, though, is to show effectiveness of the landfill liner and treatment. More attention should be paid to the collection and reporting of monitoring data.

4. Leachate Treatment

2001 Issue:

Cleaning Frequency

The metals removal unit was responsible for exceeding discharge criteria due to an excess buildup of material on the tank sidewalls. The tanks should be periodically inspected eliminate future occurrences.

GAC Testing

GAC should be monitored for breakthrough following the second unit for a period of time following detection of indicator compounds in the effluent from the lead unit. Lead column replacement is not necessary immediately.

2001 Recommendation:

The metals removal unit tanks should be periodically inspected to eliminate future occurrences of buildup of material on the tank sidewalls.

The GAC unit should be monitored for breakthrough following the second unit for a period of time following detection of indicator compounds in the effluent from the lead unit. Lead column replacement is not necessary immediately.

2006 Status: The metals removal unit is now cleaned on a routine basis to eliminate future occurrences of buildup of material on the tank sidewalls.

Primary testing of the flow is conducted routinely prior to final discharge. If the trace is found in the measurement, the effluent is again pumped through the system. Sampling is then conducted after the different treatment units to monitor for breakthrough. Repairs and/or replacements are then made as necessary.

5. Fence

2001 Issue:

There are areas of damaged fence at perimeter.

2001 Recommendation:

Repair damage fence at perimeter and implement erosion control measures.

2006 Status:

Operations reports note several instances of fence repair from fallen trees and other instances that have damaged the perimeter fencing. As vegetated areas on the site have expanded, erosion is only noted in a few minor and isolated areas.

6. O&M Manual and Quarterly Inspection Reports

2001 Issue:

OU2 cap system maintenance has generally been limited to routine mowing, periodic weed control and woody vegetation removal, fence repair, rodent control and occasional repair of stressed or eroded areas.

During the first five-year review period, Law reported some operational problems and some minor maintenance issues with the landfill and Leachate Treatment Plant as discussed above. The cap and LTP units have functioned properly since the corrective actions.

2001 Recommendations:

- a. Inspect gas vent pipes for damage or tilting. A gas vent well tilting down slope may be an indication of cover soil movement*

Status 2006: MACTEC stated that the tilt of the gas vents have been evaluated to determine whether the tilt compromised the release of gas from the subsurface. Results show that the gas is able to release efficiently, as the tilting is minor.

- b. The Quarterly Inspection Report checklist should provide some space for the inspector/operator to provide a narrative explanation of deficient items found during O&M inspections.*

Status 2006: O&M maintenance does allow a comments section.

- c. A form should be added to the O&M manual to document non-routine maintenance such as washout of the access road, cover soil slides, etc.*

Status 2006: Access Road and General Comments sections added to Quarterly Inspection Reports

- d. Requirements for reports distribution and frequency of generation should be indicated in the O&M Manual.*

Status 2006: Quarterly inspection reports and annual reviews are completed in a timely manner for the site.

- e. Emergency numbers should also be included to alert agencies in case of a contaminant release. Contacts such as the design engineer and construction contractor are also typically included in an O&M Manual.*

Status 2006: Emergency numbers are readily available.

- f. The O&M Manual needs to address initial and ongoing operator O&M and OSHA training.*

Status 2006: Operators maintain OSHA certification.

- g. For leachate treatment systems, the O&M manual should address testing, manifesting, transportation and disposal sites. The manual should contain a copy of the letter and other documentation from the landfill that specifies the conditions and profile of the wastes under which they will accept the filter cake.*

Status 2006: Waste letter and documentation for the disposal of filter cakes is adequately maintained.

- h. Address purchase and inventory of spare parts, materials, and supplies.*

Status 2006: Spare parts are on hand, and addressed. There is no issue.

- i. Specify how the manual will be kept current*

Status 2006: The O&M Manual was updated in 2002 and has addressed the issues noted. Operator changes manual operations as needed. The next update is scheduled for 2007, following the 2006 5-year review.

C. Status of Issues from Annual Reports Since 2001 5-Year Review:

1. Issue: OU1 Retaining Wall

Status: Retaining wall has been constructed, reinforced and is checked regularly for cracks or signs of deterioration. The wall appears to be well maintained.

2. Issue: Fence line

Status: Fence is repaired as breeches occur.

3. Issue: Vandalism, Trespassing

Status: Vandalism and trespassing continue to be an issue at the site. Signs are shot with firearms, marked with spray-paint and often disappear. Youth use the hill of the landfill during evenings of wet or snowy weather as a slide. Motorbike riding is a common occurrence on the Smith Farm land adjacent to the landfill, inside the fence perimeter. Alcoholic beverage containers are continually being collected and disposed of by the site operators.

VI. 2006 FIVE-YEAR REVIEW

A. Administrative Components

The Smith's Farm Landfill Site five-year review was conducted by the Army Corps of Engineers, Louisville District for USEPA, Region V. The USEPA Remediation Project Manager for the site is Mr. Clark Rushing. The following team members from the Corps of Engineers assisted in the review:

Richard Kennard, Project Geologist

Kari Meier, Project Chemist

Sandra Frye, Regulatory Specialist

The five-year review consisted of the following activities: a review of relevant documents (see References); interviews with USEPA RPM; Smith Farm Landfill operator Eddie Taylor (MACTEC); representatives from the Kentucky Department of Environmental Protection (KDEP), Division of Waste Management; representatives of the site Environmental Project Management and Operations and Maintenance Contractor (MACTEC); concerned citizens via response to paper/flier announcements by Region 4 EPA; and a site inspection.

A notice regarding the review report was placed in the local newspaper (Pioneer News). The announcement is included as Appendix (A). Participants and contacts for this 5-year review are

provided in Appendix (B).

The final report will be available in the information repository (Ridgeway Memorial Library.) Notice of completion will be placed in the local newspaper and local and state contacts will be notified by letter.

B. Community Notification and Involvement

This review will be placed in the site files and local repository for Smith's Farm Landfill. The repository is located at Ridgeway Memorial Library, located at 2nd and Walnut Street in Shepherdsville, Kentucky, 40165.

C. Document Review

Documents reviewed during this 5-year review period are included in the References at the end of this Document.

D. Site Visit/Inspection

The Third Five-Year Review site inspection for the Smith's Farm Landfill Site was held on March 16, 2006. The site visit began with a meeting at the Leachate Treatment Plant, which included an overview of the review process, regulatory issues, operational status, and interviews with Mr. Eddie Taylor, on-site operation and maintenance, MACTEC; Jeff Engels, MACTEC; and David Miller, Ford Motor Co. The list of USACE, KDEP, and PRP personnel who participated in the meeting are provided as Appendix B to this report. Weather for the site visit was bright, cool and windy.

During the site visit, the following features were inspected or observed: the OU1 and OU2 landfill caps and surface drainage system, the leachate collection and transportation system, leachate treatment plant, treated leachate discharge system, and general site conditions. In general, the leachate collection, transportation, treatment, and discharge system were found to be operating and functioning properly. A summary of the inspection findings are presented below. Refer to Appendix C for the site inspection checklists that detail the inspection parameters.

1. Landfill Cap

The landfill cover system appears to be effective in isolating waste and contaminants. The cap was observed to be in good condition. The vegetative cover was thorough and relatively abundant. There were few small areas with sparse vegetation (Photo 25). No woody plants or shrubs were observed. There was no evidence of geosynthetics damage over the capped areas inspected and no bulging. No slope instability was visible although some gas vents and protective bollards on the landfill were observed to be tilted (Photo 14). MACTEC explained that vent pipes and bollards were not set during construction specifically for monitoring movement of the landfill cap. Concrete

monuments are placed and are surveyed for this purpose (Photo 9). On March 16, 2006, MACTEC stated that the tilt of the gas vents have been evaluated to determine whether the tilt compromised the release of gas from the subsurface. Results suggest that the gas is able to sufficiently release efficiently, as the tilting is minor.

Due to the slope of the landfill and the strategic location of interceptor ditches/benches, there was no evidence of ponding on the cap. The benches slow down runoff velocity, intercepts and directs it to lined letdown channels (Photos 15, 16). Letdown channels descend down the steep south slope which collect runoff by the benches. These channels are lined, rip-rapped and grouted and in good repair.

There were several evidences of rodent burrowing, cracks or small areas of surface erosion. On-site operator indicated that Site Management is notified of any vegetative distressed or eroded sections of the cap and benches needing repair when they exceed several inches in depth or several square feet in area and repairs are made as part of warranty agreements with a subcontractor by backfilling with equivalent cap material and reseeding with equivalent seed mix, mulching and watering. Repairs are usually pursued on an as-needed basis but usually in the spring or fall to facilitate the necessary re-vegetation. Since there is on going activity at this site, repairs to the cap are required on a continuing basis. Eroded portions of benches are repaired immediately as conditions allow.

2. Leachate Treatment

The leachate treatment system appeared to be operating and functioning properly. Visual inspections of the treatment interior showed no critical signs of wear. The interior and all equipment were very clean, painted and well maintained (Photos 29-36). The operator was knowledgeable and forthcoming with plant operations and procedures.

3. Operations and Maintenance

a. Manuals

The O&M Manual was readily available in the office and included as-built drawings, maintenance logs, sampling and analysis plan, site-specific safety and health plan, and OSHA training records. A copy of the Treatment Plant O&M Manual was reviewed for this report.

The operators confirmed the Health and Safety Plan (HASP) is in place and sufficient to control risks at the site and is being properly implemented. The remedial action objective of preventing direct contact or ingestion of contaminated soils and leachate continues to be met by the intact cap.

b. Costs

The estimated construction cost for the landfill cap, leachate/GW collection, transmission and discharge system from 1999 through 2005, by the Feasibility Study (FS), was \$33.4 M. Actual cost was \$15.5 M. Estimated cost of the Leachate Treatment Plant was \$1.1 M. Actual cost was approximately \$1.7 M. Projected estimated O&M costs through 2029 are estimated at \$0.425M per year (FS, June 1994). On average, O&M costs since 1996 have run 24% lower than the original FS estimate of \$0.45 M, (Table 4). Since the opening of plant treatment facility operations in 1999, O&M costs have run about 6% lower than the original FS estimate. This includes large annual costs in 2001 due to the additional costs of construction and connection of the OU1 influent line to the treatment facility at OU2.

c. Land Controls

The entire site is securely fenced; however, there have been instances of falling trees and trespassers compromising the fence line. These sections have been repaired in a timely manner. Gates are locked and warning signs have been posted along the entire chain-link fence alignment and access roads around and on the site, approx 100 feet apart. Several signs have been marked with graffiti, shot with guns, or stolen by the local trespassers (Photos 40-42).

Deed restrictions require enforcement of the landfill and the immediate area around the landfill to not be utilized for residential or commercial building due to the continued presence of hazardous contaminants on-Site and the probable settling and subsidence of the landfill. The ROD also requires water use restrictions for ground water and surface water in the immediate area of the landfill. These waters shall not be used for potable water sources as a precaution against possible future releases of contaminants. No new wells have been identified within the deed restriction area.

E. Data Review/Contaminant Trend Analysis

1. Influent/Effluent Data

Influent and effluent data have been provided in tabular form, but have not been graphed by the contractor to provide a site conceptual description of change in contaminant concentrations time. These are suggestions for inclusion in annual reports, so that reviewers and decision makers have a chronological understanding of the concentrations of contaminants at the site and the effectiveness of treatment. A simple plot of some of the influent parameters in Figure 11 suggests an increase in treated contamination after the addition of OU1 to the treatment facility in 2001. The subsequent decline of these parameters is followed by peaking concentrations in early 2005. The variation supports need for continued treatment. Comparison of influent and effluent concentrations show the facility is adequately removing contaminant from the area. It does not, however, provide

information of the possible transfer to groundwater, plume extent, or change of leachate concentrations spatially with time. This should be addressed by evaluation of groundwater monitoring data.

Evaluation of the effluent data as presented in the annual reports for 2001, 2002, 2003, 2004 and 2005 (Appendix D) show there are a few isolated instances of exceedences. In addition, review of effluent reported parameters shows there are some estimated concentrations where the instrument detection limits are often not sufficient to achieve low enough detection to screen against the KPDES permit limits for some of the analytes.

Investigation of method reporting limits and effluent discharge is recommended. An evaluation of detection limits as compared to these criteria should be included in the parameters. Analysis methods reported in data tables of annual reports should include the preparation methods used to prepare the sample for analysis. Also, validation of laboratory analysis should be presented in the annual reports. Detection limits and percent recoveries should be included in these reports.

Finally, there seem to be some inconsistencies in the values reported for influent data for the two recorded events in 2002 as provided in the annual reports for 2002 and 2003. Recommend review of data and correction of consolidated tables, as necessary.

2. Monitoring Data

Data from monitoring wells have not been presented in annual reports. This is partially due to the difficulty of data collection during dry seasons, since the aquifer is below the leachate zone except during wet periods. This data is necessary to prove effectiveness of the landfill liner in prevention of transfer of leachate to the groundwater, and is useful to determine the integrity of the existing liner. Previous reports note the collection of groundwater has been difficult, so we suggest that monitoring data be consciously collected during or after a wet period, then reported and plotted to show spatial variability in the plume for OU1 and OU2. Additionally, this monitoring is needed to comply with the ROD pg 92 (Sections 10 and 11 of 401 KAR 34:060), which states, "Should the groundwater monitoring at the Site indicate that the MCLs/MCLGs are consistently exceeded, then an appropriate corrective action will be applied to comply with the MCLs/MCLGs." No data has been sufficiently provided for such a determination.

While land use restrictions are implemented to prevent the use of groundwater at receptor locations, to remain protective in the long-term, groundwater monitoring is also required to identify any potential for contamination prior to off-site migration. Due to the inadequate groundwater monitoring at this site, the potential for future problems cannot be addressed, thus long term protectiveness of the remedy is not supported.

F. Interviews

The following individuals were contacted by letter as part of the five-year review:

1. Mr. Jeff Engles, MACTEC Engineering and Consulting, Site Operations and Maintenance
2. Susan Mallette, Kentucky Department of Environmental Protection, Superfund Branch, Division of Water Management (letter)
3. Robert Pugh, Kentucky Department of Environmental Protection, Superfund Branch, Division of Water Management (letter)

Mr. Engles is the project manager for MACTEC, and is listed as a point of contact for the public on the front gate of the facility. He was included in the interview process, since he has potential connection to local residents. His comments were solicited to address general sentiment of the local community:

1. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

Response: *MACTEC has not had routine communications with the local public. Our contact information is posted at the front gate, but to date we have not been contacted by anyone.*

2. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

Response: *MACTEC's field personnel have received complaints from the adjacent property owner/residents regarding 4-wheeler activity on the Smith's Farm property surrounding the landfill. MACTEC has placed and maintained additional "NO TRESPASSING" signs on the fencing surrounding the site. The maintenance and security of the landfill is not included in the controlled area of the facility, however, in an attempt to reduce trespassing, additional signs have been placed on the property surrounding the facility and local police have been asked to provide stepped-up surveillance over the weekends.*

3. Are you aware of any shortcomings in current site operations; noting which inadequacies, if any, currently prevent the remedy from being protective?

Response: *MACTEC is not aware of any shortcomings at this time. The site is continually monitored by Eddie Taylor and as issues arise, they are addressed.*

4. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

Response: *None at this time.*

Mr. Pugh and Ms. Mallette were initially contacted in February 2006 and notified that the Five Year Review was being conducted. Both participated in the Site Inspection Visit, and offered input to the current status of the site, and O&M issues including permits and long-term monitoring. Both verbally expressed pleasant views of the operations during the visit. During the course of the formal review process, both Ms. Mallette and Mr. Pugh participated in an interview to clarify or expand on the following various points of the Remedial Action:

1. What is your impression of the project? (General sentiment)

Response: *It's a well-maintained and monitored site.*

2. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

Response: *KDWM has generally conducted yearly inspections at this site. Site staff has always been informative regarding concerns and the remedies. The yearly reports have been thorough.*

3. Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

Response: *No complaints have been logged nor any Notice of Violations issued for this site.*

4. Do you feel well informed about the site's activities and progress?

Response: *This office has been kept well informed about activities at the site. Site staff has contacted us as needed.*

5. Are you aware of any shortcomings in current site operations; noting which inadequacies, if any, currently prevent the remedy from being protective?

Response: *The remedy is believed to be protective of human health and the environment.*

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

Response: *No comments.*

EPA Region IV Remedial Project Manager, Mr. Clark Rushing. Mr. Rushing provided background information on the Smith's Farm Superfund Site, a history of site activities, and a list of potential contacts having knowledge of site activities. Mr. Rushing provided extensive documentation that is maintained in Region IV's Atlanta offices as part of the Deletion Docket and CERCLA Administrative Record for the Site. Mr. Rushing also actively participated in the site inspection visit on March 16, 2006. His interaction with local residents is summarized here:

Eleven local residents were interviewed on June 27, 2006 by EPA. Interviews were conducted door-to-door in the neighborhood located adjacent to the southeastern corner of the site. In addition, fact sheets about the 5-year review process and the consequences of trespassing on the site were handed out to interviewees. The fact sheet can be found in appendix F.

The interview questions and responses are as follows:

1. What is your overall impression of the Five-year review process?

Response: All residents interviewed had little knowledge of the 5-year review process.

2. In terms of site security, are you aware of activities such as trespassing and vandalism at the site? If so, please give details.

Response: Most residents were unaware of trespassing activity on the site. Several residents claimed they have seen off-road vehicle trailers near the site but were unaware of specific off-road activities on the site. Several residents also claim that off-road vehicles have been driven on their property without permission.

3. Are you, and members of your family, aware of the potential risk of entering the site both from a health and legal perspective?

*Response: All but three residents interviewed said they are aware of both the legal and health consequences of trespassing on the Smith's Farm landfill site.**

*All residents were given a fact sheet outlining the consequences of trespassing on the site regardless of their answer to this question.

4. Do you have suggestions for maintaining some level of security and curtailing trespassers at the site?

Response: All residents agreed that 24-hour guards or dogs would be the only way to stop trespassing. Most residents agreed that surveillance cameras would do little to mitigate the problem.

5. Are there any community concerns that EPA should address or be aware of?

Response: There were no community concerns related to the site.

6. Do you feel well informed about current and future activities at the site?

Response: All residents felt that they either had enough information or did not care to receive more unless there was a problem.

7. Would you be interested in reuse of the site (e.g. - park, nature preserve, etc.)?

Response: All residents except one expressed interest in seeing the site reused as a park or nature preserve. These residents felt that the site should be used for something beneficial to the community. The one resident who answered "no" expressed concern about illegal activities on the site if it were open to the public.

VII. TECHNICAL ASSESSMENT

According to the current guidance of the 5-Year review, here we address the Remedy function and protectiveness by addressing 3 specific questions:

A. Question A: Is the Remedy Functioning as Intended by the Decision Documents?

This question is addressed by evaluating the operations of the collection and monitoring system at the site, and reviewing the assessments conducted in Sections VI. D. and VI.E. above. As stated in the 1993 ROD, OU2 and OU1 were initially treated as separate phases of the investigation and remediation of the Smith's Farm Site, but since then, the enforcement activities for both Operable Units have been combined. The leachate extraction systems for each of these sites pump into a single facility, for combined treatment.

Remedial Action Performance

The treatment facility was initially designed to treat OU2 design concentrations as summarized in Table 5. Values reported in the table subsequent to the design values are prior to treatment. Leachate from the OU1 landfill was collected in 2-10,000 gallon tanks and hauled off site between September 1995 and October 2000. Leachate generated in OU1 based on 1999/2000 data is approximately 40,000 gallons per year. In October 2000, a force main was installed which allowed leachate generated by OU1 to be combined with OU2 leachate for treatment at the OU2 plant.

As reported in the 2001 5-year review, 3.05 million gallons of leachate from OU2 had been treated since the plant O&M phase began January 28, 1999. A review of available records and influent and effluent monitoring reports through December 31, 2005, show that approximately 5.66 million gallons of additional leachate has been treated (OU1 and OU2 combined) during this review period of January 1, 2001 to December 31, 2005. The difference in contaminant concentrations between the two operable units are not monitored directly. Although the addition of OU1 influent to the treatment system only fractionally increase the value treated influent, a significant increase in influent contaminant concentrations was observed (Figure 11). The influent concentrations subsequently decreased through 2003, but then increased in 2004 to early 2005. Influent data since last review shows most compounds still remain above discharge

standards with seasonal variation in elevated contaminants and treated concentrations (Table 6). Total contaminant mass removed has not been estimated for this site.

B. Question B: Are the Exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy still valid?

The arsenic drinking water MCL was noted as an ARAR change defined during this 2006 5 - year review period. The change is not expected to affect the effluent discharge criteria at the site, although KDEP should be consulted. No additional contaminants were noted. The ARARs Review and Risk Assessment Review conducted for this conclusion are summarized here:

As done in 2001, an ARAR review was repeated for the site in accordance with the EPA guidance document, "Comprehensive Five-Year Review Guidance," EPA 540-R-01-007, OSWER No. 9355.7-03B-P June 2001. No additional or altered requirements were implemented during this review that currently affects the remedy. The following documents were reviewed to determine initial and current ARARs:

- Record of Decision, September 17, 1993
- Commonwealth of Kentucky Natural Resources and Environmental Protection Cabinet, Department for Environmental Protection letter July 10, 1997 from Jack A. Wilson Director, Division of Water to Nathaniel Peters, II PhD, P.E, Law Engineering and Environmental Services, Incorporated Re: Smith's Farm Operable Unit 2
- United States Environmental Protection Agency, Region 4, July 6, 1998 letter to Mr. R. Daniel Lopper, P.E. et Al. Law Engineering and Environmental Services, Inc.
- Commonwealth of Kentucky Natural Resources and Environmental Protection Cabinet, Department for Environmental Protection letter March 29, 2000 from Michael V. Wech, Manager Hazardous Waste Branch to Mr. Victor Doritis Re: Smith's Farm Claim for Exclusion from the 1999 Hazardous Waste Assessment.
- First 5- Year Review Report, 2001
- Law Environmental 1999 O&M Manual
- MACTECH 2002 O&M Manual

A summary of the initial ARARs is provided by the 2001 5-year review, and reviewed here to determine any potential for update.

Specific compliance monitoring of the effluent at the Smith's Farm were identified in a letter dated July 10, 1997, from the State of Kentucky to Law Environmental. It appears a compliance monitoring program and matrix was proposed and agreed upon by the appropriate parties. These parameters as well as those originally proposed in the ROD and those stated in the O&M Manual are

identified in Table 7.

1. Applicable ARARs for Protectiveness Review:

Per EPA Guidance, only those ARARs that address risk posed to human health or the environment need be reviewed. Other ARARs listed in the ROD and not reviewed in this five-year review were location- and action-specific requirements that were germane to the construction and operational activities of the landfill, leachate treatment, support structures and sediment removal etc. Those ARARs were not considered pertinent to evaluating the protectiveness of the remedy from an on going operation and maintenance perspective. Such ARARs included 401 KAR 34:230, Sections 6,7,8,9 – landfills, landfill cap design, 401 KAR 34:190 – tank design and 401 KAR 34:240, 50:025, 51:010, 51:052, 52:010, 63:005, 63:010, 63:020, 63:021 – Air pollution and fugitive emissions control requirements relative to construction activities, 601 KAR 1:025- Transportation of hazardous material, KRS 174.415- Hazardous material, permits, emergency procedures, enforcements, KSR 262– Soil and Water Conservation requirements, 401 KAR 34:070 and KAR 47:040 – Deed notices on solid or hazardous wastes, and others such as OSHA standards, groundwater monitoring as well as Fish and Wildlife, Endangered Species and Wetlands Protection. The relevant ARARS requiring evaluation during the 5-year review are as follows:

a. 401 KAR 34:060, Sections 1, 8, 9, 12 – Ground Water Protection

No specific ground water protection standards were identified as a remediation goal with a definitive endpoint, however applicable ground water criteria were generally referenced in the ROD, section 7.6.4 (pg 92), section 9.2.2 (pg 115-120). Identified programs for consideration include Federal ARARs from the Resource Conservation and Recovery Act (RCRA) (42 USCA Section 6901 et seq and 40 CFR Part 264), and the Clean Air Act (42 USCA 7401 et seq and 40 CFR part 50 and 61). Both discussions address monitoring programs and evaluation with a later determination on the appropriateness of any warranted additional corrective action. Reference #3 above (letter 7/6/98) did not address any groundwater monitoring requirements, but was rather restricted to monitoring and reporting requirements for the leachate treatment plant.

b. 401 KAR 5:005 – Permits to discharge sewage; industrial and other wastes; definitions Reference letter 7/10/97 indicates permit requirements were waived, contingent on effluent criteria in the letter's attachment.

c. 401 KAR 5:026 - :035 - Kentucky's Surface Water Quality Standards

While water quality standards were defined in the ROD as ARARs, the majority of the effluent discharge criteria were ultimately established by the State of Kentucky in the 7/10/97 letter. Aside from the risk-based numbers for eleven (11) constituents

identified in Table 9.0c (pg 113) of the ROD, an additional twenty (20) constituents (see Table 6 below) were added by the State. The effluent limits presented by the State for semi-volatiles and volatiles appear to have been set at a default value of 5 ug/l. Since the receiving surface water, Bluelick Creek, as stated in the ROD, is still (and as of June, 2006) not identified specifically in the State surface water designated use provisions (401 KAR 5:026) it is not possible to assign specific water quality based standards for the various parameters identified. Effluent limits defined in the 7/10/97 letter generally meet or exceed water quality standards promulgated by the State of Kentucky (401 KAR 5:031) for the majority of designated uses, however since the decision logic for the development of the effluent parameters could not be determined, any general statements regarding compliance with State Water Quality Standards, as *promulgated currently*, again can not be made.

d. 401 KAR 34:060 sections 10 and 11 – compliance monitoring programs and corrective action programs

Since corrective action criteria were not explicit in the ROD, follow up compliance monitoring and corrective action will continue to be evaluated by EPA and the State of Kentucky under the monitoring and reporting provisions of operations and maintenance protocols defined in the appropriate remediation documents (see ROD pg 92: Sections 10 and 11 of 401 KAR 34:060).

e. Maximum Contaminant Levels (MCLs)

The Maximum Contaminant Level (MCL), 40 CFR Part 141 lists National Primary Drinking Water Regulations. The MCLs are maximum allowable concentrations for drinking water. There is a change listed for arsenic drinking water standards. Table 7 includes these criteria. The arsenic regulations listed in §141.51 and §141.62 are effective for the purpose of compliance on January 23, 2006. The regulations enforce the arsenic MCL at 0.01 mg/L and a new MCLG at 0.0 mg/L. Currently, the effluent discharge criterion for arsenic at Smith's Farm is 0.011mg/L, prior to dilution in the adjacent stream. It is expected that the discharge after dilution still remains protective, but regulators may want to consider this regulation, since the stream is likely a splashing/wading stream for the adjacent neighborhood youth.

Additionally, these MCLs should be considered when evaluating groundwater monitoring data. Groundwater monitoring data should be evaluated to determine the integrity of the landfill liner as a protective measure for preventing contaminant leaching to groundwater during wet periods.

2. To Be Considered, (TBC)

Maximum Contaminant Level Goals (MCLGs)- 40 CFR Part 141 lists National Primary

Drinking Water Regulations. MCLGs are non-enforceable levels that fall into the ground water monitoring and corrective action provisions. With the MCL change above, a new MCLG at 0.0 mg/L was also enforced for arsenic drinking water standards. The arsenic regulations listed in §141.51 and §141.62 are effective for the purpose of compliance on January 23, 2006.

3. KPDES regulations and Kentucky Water Quality Standards

EPA five-year review guidance requires a comparison of standards identified in the ROD against current standards. If a current standard is more stringent than the previous standard, the review process continues utilizing standards originally identified in the ROD as well as those current standards that are more stringent than those in effect at the signing of the ROD. There have been two federal actions pertaining to landfills under the Clean Water Act, since the opening of the plant. These were noted in the 2001 review.

- a. On January 19, 2000 (65 FR 3008) EPA promulgated final effluent limitations guidelines (ELGs) for RCRA Subtitle C and RCRA Subtitle D landfills.
- b. On October 30, 2000 (65 FR 64746) EPA reissued the Multi-Sector General Permit (MSGP) for discharges of storm water associated with industrial activity (see 40 CFR 122.26).

There have been no new standards issued for landfills since the last review. Landfills are addressed under Sector L of that *federal* general permit for storm water. While it is clear from the applicability sections of both regulations that "inactive" landfills addressed under the National Contingency Plan (NCP) are not directly covered under the scope of the regulation, these newly promulgated standards may be relevant and appropriate under the ARAR analysis. Furthermore, the State of Kentucky is fully authorized under the CWA to implement all permitting programs. In the 2001 review, the existing analytical parameter list for the Smith's Farm site was compared with the ELG (40 CFR 445) parameter list as well as the parameter list identified under Sector L of the MSGP, or existing State storm water program, to determine if expanding the current monitoring program would enhance protectiveness to the site activities.

All 40 CFR 445 defined parameters have higher effluent values than those currently in place at the Smith's Farm effluent treatment plant, but no ROD or KPDES criteria for BOD₅ or TSS were found in any Smith Farm requirements. The remaining ten (10) parameters of the federal regulations were not listed in the ROD or any State of Kentucky communication letters. It was recommended in 2001 that these ten (10) parameters be

considered for inclusion of existing monitoring and reporting requirements. To date, pH, BOD, and TSS are monitored at the site to reflect treatment plant performance. Ammonia (as N), α -terpinol, aniline, benzoic acid, naphthalene, p-cresol, and pyridine are still not included in reports.

4. Compliance with ARAR Summary Statement

A review of standards identified as ARARs in the ROD was completed as well as an evaluation of new standards promulgated since the signing of the ROD. Three new federal regulations under the CWA have been promulgated since the ROD was signed: Effluent Limitation Guidelines for Landfills (40 CFR 445), the storm water general permit regulations for industrial activity (September 29, 1995, reissued March 30, 2000), specifically Sector L (of the federal multi-sector general permit) and arsenic MCLs and MCLGs (40 CFR 141) implemented as new drinking water standards (effective January 23, 2006). While these new regulations are not directly applicable to site operations, they may be considered relevant and appropriate and could be further evaluated for incorporation into site operations. Additionally, the State of Kentucky is a fully authorized CWA State, and therefore any State adoption of these federal regulations would override the federal program.

5. ARAR Compliance Recommendation

All parties should evaluate potential protectiveness benefits associated with the recently promulgated drinking water MCL and MCLG for arsenic with the operation of landfills.

Risk Assessment Review

In addition to the ARARs Review, an evaluation of the Remedy Risk Assessment was conducted. No change/findings of toxicity values, exposure pathways, land use, contaminants or byproducts, or risk calculations pertinent to the site were noted. The arsenic drinking water MCL noted as an ARAR change above is the only change found effecting Question B in this review. The change is not expected to affect the effluent discharge criteria at the site, although KDEP should be consulted.

C. Question C: Has Any Other Information Come to Light That Could Call Into Question the Protectiveness of The Remedy?

Issues that affect the protectiveness of the remedy are identified in section VIII below. In summary, groundwater monitoring is not currently conducted effectively to determine potential for offsite migration. Gas vent monitoring is not conducted to evaluate horizontal atmospheric pollution. Vandalism and Trespassing are an ongoing concern.

D. Summary of Technical Assessment

Although the extraction and treatment system is currently operating as intended, the arsenic

groundwater MCL has changed during this review period, and groundwater monitoring and gas vent monitoring are not conducted effectively to determine off-site migration potential.

VIII. CURRENT ISSUES

None of the following deficiencies are sufficient to warrant a finding of "not protective" as long as corrective action is taken on the noted deficiencies. There were no indications of early potential failure.

A. Landfill

The site is well maintained. Overall, the large eroded areas or areas of stressed vegetation that were noted in the previous five-year review have reduced in size. Some small areas remain. There are some locations of rodent tunneling beneath the surface cover.

B. Leachate Collection and Transmission

The interior of the facility is very clean and well maintained. All operations noted in the previous review needing attention have been addressed.

C. Groundwater Migration Monitoring/ Gas Vent Monitoring

- The operations manual identifies the need for groundwater monitoring. Although some wells are often dry, the requirements indicate that the plumes should be plotted to show spatial extent of these plumes.
- Monitoring well results do not appear in quarterly or annual reports during this review period. The site operator indicated that a select few wells are routinely sampled, although one of the four wells is usually dry. In addition, the change of environmental teams during the course of the past five years has made it difficult to obtain a timeline of monitoring data for this review. Thus we have not evaluated spatial extent of contaminant in monitoring wells in this review.
- The Record of Decision for groundwater (OU2) requiring continued monitoring of the landfill collection and treatment system by analysis of groundwater and leachate samples has not produced appropriate reports of contaminant concentrations with time.
- In addition, gas vents have not been monitored at the site. Monitoring probes are not present at the site, neither within the site nor at the perimeter/boundary. These vents could provide evidence of decomposition of landfill contaminants and could be used to document this decontamination with time. They also help to maintain cover system stability and limit

horizontal migration of landfill gas from the site.

D. Leachate Treatment

Treatment system is clean and maintained in excellent condition.

E. Vandalism/ Trespassing

Vandalism and trespassing continue to be an issue at the site. Signs are shot with firearms, marked with spray-paint and often disappear. Youth use the hill of the landfill during evenings of wet or snowy weather as a slide. In addition the adjacent property contains a fenced-in hill that local trespassers use as a motorbike trail ride and entertainment. The senior technician of the site noted routine use of the hill for those purposes and a fear of liability for the possibility of injury on the property due to these occurrences. He also notes that in cleanup of these grounds alcoholic containers are often collected for disposal. Three adjacent property owners have complained that the motorbike trail use of the Smith Farm hill leads the trespassers into their property as well.

F. Operation & Maintenance Manual

All operations needing attention in the previous review have been addressed and are well kept.

G. Data Analysis and Reporting

- Reporting Parameters: Review of effluent reported parameters shows there are some estimated concentrations, where method reporting limits appear to be above the allowed discharge limit per the KPDES permit. As reported by the Annual O&M Reports during this review period, these parameters include, but may not be limited to: methylene chloride, 2,4-dinitrotoluene, diethyl phalate, arsenic, beryllium, cadmium, lead, mercury, selenium, thallium, zinc. It is noted that the KPDES levels for mercury and silver were established below achievable detection levels, such that variances were granted.
- Conceptual Site Model: There is no conceptual model presented in annual reports to show site progress. As the need for treatment may diminish over time and eventually meet discharge standards with less aggressive treatment, annual reports should plot the influent and effluent concentrations versus time to show annual variability and overall site progress.

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

A. Landfill

- Corrective actions should be conducted to repair several small areas of localized erosion or

rodent penetration to the OU1 and OU2 caps.

- Corrective actions should be conducted to repair the few small areas of localized stressed vegetation.

B. Leachate Collection and Transmission

Continue diligent maintenance. All operations noted in the previous review needing attention have been addressed.

C. Groundwater Migration Monitoring/ Gas Vent Monitoring

- Data should be used to show change in concentration with time within the landfill during wet seasons, but should also be used to evaluate the integrity of the landfill liner with respect to leaching through the liner to groundwater. Deficiencies in the liner would present themselves in groundwater monitoring. To date, monitoring well data is not reported to show history of the contaminant plume within the landfill or as a protective measure surrounding the landfill. Spatial extent of the plume concentrations is not routinely evaluated. As recommended in the 2001 review, the contaminant concentrations need to be reevaluated annually and plotted on a site map as part of the annual report to determine if the leachate capture system is successfully preventing migration off site.
- It is recommended that MACTEC and the PRP work to compile these data and begin adding monitoring data to the annual reports to define spatial extent of contaminants in the landfill and show the change of concentrations over time. As operations at the site work to remove contaminant from the landfill, these monitoring wells should be used to show the change in concentrations with time within the regions of the landfill itself, and to evaluate the protectiveness to the groundwater below.
- There should be some record of historic plume concentrations and locations of these contaminants with time in order to address decomposition and treatment of the contaminants.
- An evaluation should be conducted to determine whether gaseous emissions from the landfill should be included in monitoring strategy. The purpose of monitoring gas emissions is to determine the effectiveness of the existing vent system and measure horizontal migration of landfill gas from the site. If necessary, monitoring should be done through some perimeter gas monitoring probes, in order to detect whether landfill gas is migrating laterally from the site. Such monitors do not currently exist at the site, and would need to be installed.

D. Leachate Treatment

There are no additional recommendations for the treatment system in this review.

E. Vandalism/ Trespassing

- Continue to periodically check and repair damaged fence in a timely manner.
- Consider implementing more progressive trespassing and vandalism control measures.

F. Operation & Maintenance Manual

Recommend continual as-needed update to the O&M manual to reflect changing processes or routines in the facility maintenance.

G. Data Analysis and Reporting

Recommendations for reporting parameters include:

- An evaluation of detection limits and reporting limits as compared to these criteria should be included in the parameters reported. Method reporting limits should be, at a minimum, less than one-half of the project specified action levels for reliable project decision-making.
- Analysis methods reported in data tables of annual reports should also include the preparation methods used to prepare the sample for analysis.
- Detection limits and percent recoveries should be included in these reports.

Recommendations for conceptual site model:

- In order to determine site progress and to monitor whether the leachate capture system is successfully preventing migration off site, further reporting should include timeline plots in which each report should build on the last. Figures generated from these tables should show 1) influent concentrations with time which will illustrate annual fluctuations, natural attenuation and more importantly, the functionality of the site operations for long-term progress and 2) monitoring well data to spatially represent contaminant extent and migration or decomposition with time. A figure or table of effluent concentrations with time will also provide a simple mechanism to show whether there have been discharge exceedences from the site.
- Data tables in each annual review for leachate influent and effluent should build upon previous data so that change in concentrations over time is recorded and plotted.
- Data tables and/or figures should be included in each annual review for monitoring well data, which should be able to show a spatial conceptual site model of contaminants over time.

X. PROTECTIVENESS STATEMENT

Based on this Five-Year Review and the above summary, the following conclusion is drawn:

The remedy at the Site currently protects human health and the environment because the landfill cap is in tact, the leachate treatment system is effective and all residents in the vicinity obtain water from the city, thus eliminating the exposure pathways relative to surface soils, surface water and leachate water. However, in order for the remedy to be protective in the long-term, groundwater monitoring data must be reported and evaluated to ensure that the remedy prevents migration of hazardous substances offsite within groundwater.

XI. NEXT REVIEW

The Smith's Farm Landfill Site is a statutory site that requires on-going five-year reviews. USEPA should conduct the next review within five years of completion of this third five-year review, listed as the date of signature on the inside cover of this report.

REFERENCES

1. Record of Decision, Remedial Alternative Selection, Smith's Farm Site-First Operable Unit, Brooks, Kentucky, U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, September 29, 1989.
2. Administrative Order [UAO] For Remedial Design and Remedial Action (Third Amendment), Smith's Farm Site, EPA Docket No. 90-27-C, March 14, 1990.
3. Amendment to the Record of Decision (A Fundamental Change To The Remedy), Smith's Farm CERCLA NPL Site, Operable Unit One, Brooks, Bullitt County, Kentucky, United States Environmental Protection Agency, Region IV, Atlanta, Georgia, September 30, 1991.
4. Record of Decision for Operable Unit Two, Smith's Farm (Brooks), CERCLA NPL Site, Shepherdsville, Bullitt County, Kentucky, Kyd0972674139, Summary Of Remedial Alternative Selection and the Declaration, U.S. Environment Protection Agency, Region IV, Atlanta, Georgia, September 17, 1993.
5. Unilateral Administrative Order For Remedial Design/Remedial Action, Smith's Farm CERCLA NPL Site, Operable Unit Two, Brooks, Bullitt County, Kentucky, United States Environmental Protection Agency, Region IV, Atlanta, Georgia, April 22, 1994.
6. Final Remedial Action Report, Smith's Farm Operable Unit One, Brooks, Kentucky, Prepared For Smith's Farm Operable Unit One, 106 Order Respondents, Brooks, Kentucky, January 31, 1996.
7. Document Package for the Remedial Action Completion Acceptance for the Smith's Farm (Brooks) CERCLA NPL Site, Operable Unit One, Brooks, Bullitt County, Kentucky, United States Environmental Protection Agency, Region IV, Atlanta, Georgia, April 16, 1996.
8. Consent Decree (Civil Action No. C90-0232-L (R), United States of America, et al., Plaintiffs V. Mary Ruth Smith et al., Defendants, October 14, 1997.
9. Administrative Order on Consent, Smith's Farm Superfund Site, Bullitt County, Kentucky, January 23, 1998. (Note: 24 *De Minimis* Parties.)

10. Draft Final Construction [RA] Report, Smith's Farm Operable Unit Two, Bullitt County, Kentucky (August 27, 1998), Law Engineering and Environmental Services, Inc.
11. Operation and Maintenance Plan, Remedial Action, Smith's Farm Operable Unit One, 106 Order Respondents, Originally Prepared By Law Engineering and Environmental Services, Inc., Kennesaw, Georgia, 1995; Updated by MACTEC, Latest Update, 2001.
12. Five-Year Review, Smith's Farm (Brooks), CERCLA NPL Site, Brooks, Bullitt County, Kentucky. Prepared by the United States Environmental Protection Agency Region IV, Atlanta, Georgia, September 1998.
13. Appendix B, KIPDA Area Development District, Water-Resource Development: A Strategic Plan, Summary of Water Systems, Figure: EXISTING & PROPOSED WATER LINES, KIPDA in Bullitt County, Kentucky. Prepared By: Water Resource Development Commission, Department for Local Government, Draft October, 1999.
<http://kgsweb.uky.edu/download/water/wrdc/kipda.pdf>
14. EPA guidance document, "Comprehensive Five-Year Review Guidance," EPA 540-R-01-007, June 2001.
15. Five-Year Review, Smith's Farm (Brooks), CERCLA NPL Site, Brooks, Bullitt County, Kentucky. Prepared by the U.S. Corps of Engineers, Louisville, Kentucky, for the United States Environmental Protection Agency Region IV, Atlanta, Georgia, September 2001.
16. 2000 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by LAW Environmental; Prepared For: Smith's Farm Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, March, 2001.
17. 2001 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by LAW Environmental; Prepared For: Smith's Farm Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, April, 2002.
18. 2002 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by MACTEC; Prepared For: Smith's Farm

Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, April, 2003.

19. 2003 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by MACTEC; Prepared For: Smith's Farm Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, March, 2004.
20. 2004 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by MACTEC; Prepared For: Smith's Farm Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, April, 2005.
21. 2005 Annual Operation & Maintenance Report, Smith's Farm Operable Units One And Two, Shepherdsville, Kentucky; Prepared by MACTEC; Prepared For: Smith's Farm Operable Units One and Two, 106 Order Respondents, Shepherdsville, Kentucky, March, 2006.

Note: Some text in this document has been extracted, summarized, and/or edited from the above Smith's Farm Landfill Superfund Site documents

TABLES

Table 1: Site Remedial History for OU1 and OU2.

OU	Action Name	Actual Start	Actual Completion
0	LANDFILL WASTE OPERATIONS BEGIN	1950s	
0	DISCOVERY		2/1/1980
0	PRELIMINARY ASSESSMENT		7/1/1982
0	SITE INSPECTION		8/1/1984
0	REMOVAL	6/18/1984	8/17/1984
0	PROPOSAL TO NPL		10/15/1984
0	NPL RP SEARCH		5/15/1985
0	FINAL LISTING ON NPL		6/10/1986
0	RI/FS NEGOTIATIONS	3/15/1987	4/15/1987
0	REMOVAL	5/27/1988	5/27/1988
0	NPL RP SEARCH		1/31/1989
0	LANDFILL WASTE OPERATIONS CEASE	approx	5/1/1989
1	ADMINISTRATIVE RECORDS	6/1/1989	6/1/1989
1	COMBINED RI/FS	4/3/1987	9/29/1989
1	RECORD OF DECISION		9/29/1989
0	ADMINISTRATIVE RECORDS	12/29/1988	10/4/1989
1	ADMIN ORDER ON CONSENT		11/13/1989
1	RD/RA NEGOTIATIONS	12/20/1989	3/14/1990
1	UNILATERAL ADMIN ORDER		3/14/1990
0	REMOVAL ASSESSMENT	9/30/1991	9/30/1991
1	ROD Amendment		9/30/1991
1	PRP RD	5/4/1990	4/14/1992
2	PRP RI/FS	11/9/1989	9/17/1993
2	RECORD OF DECISION		9/17/1993
2	RD/RA NEGOTIATIONS	10/29/1993	4/22/1994
2	UNILATERAL ADMIN ORDER		4/22/1994
2	PRP RD	6/1/1994	3/13/1996
1	PRP RA	5/20/1993	4/22/1996
0	CONSENT DECREE	7/25/1997	10/10/1997
0	ADMIN ORDER ON CONSENT		1/23/1998
0	FIRST FIVE YEAR REVIEW	3/1/1998	9/30/1998
0	SECOND FIVE YEAR REVIEW	3/1/2001	9/30/2001

Table 2: Groundwater Monitoring Table

Group	Monitoring Period	Monitoring Frequency
A	Years 1-30	Annual
B	Years 1-5, Years 6-30	Semi-Annual, Annual
C	Years 1-30	Annual
D	NA	When a release is detected in a Group B well

Table 3: Treatment Plant Effluent Discharge Criteria

PARAMETER	LIMIT	PARAMETER	LIMIT
Benzene	<5 ug/l	Antimony	62 ug/l
Butyl benzyl phthalate	<10 ug/l	Arsenic	11 ug/l
2-Chlorophenol	23 ug/l	Barium	231 ug/l
1,2-Dichlorobenzene	<5 ug/l	Beryllium	5.3 ug/l
1,4-Dichlorobenzene	<5 ug/l	Cadmium	1.1 ug/l
1,1-Dichloroethane	<5 ug/l	Chromium(VI)	11 ug/l
1,2-Dichloroethene	<5 ug/l	Copper	12 ug/l
Dichloroethene, total	<5 ug/l	Cyanide	5 ug/l
Dichloromethane	<5 ug/l	Iron	1.0 mg/l
1,2-Dichloropropane	<5 ug/l	Lead	3.2 ug/l
2,4 Dimethylphenol	<10 ug/l	Mercury*	0.2 ug/l
Ethylbenzene	<5 ug/l	Nickel	0.160 mg/l
Nitrobenzene	250 ug/l	Selenium	0.005 mg/l
N-nitroso-di-n-propylamine	11 ug/l	Silver*	0.5 ug/l
Phenol	<10 ug/l	Thallium	11 ug/l
Tetrachloroethane	<5 ug/l	Zinc	0.110 mg/l
Toluene	<5 ug/l		
1,1,2-Trichloroethane	<5 ug/l		
Trichloroethene	<5 ug/l		

* The discharge limits for the constituents of concern were established during design as the criteria required of the equipment manufacturers and the installation contractor. The effluent discharge criteria was established as 0.012 ug/l for Mercury and 0.12ug/l for Silver. These detection levels are not currently achievable, therefore, the lowest possible reporting levels the laboratory can achieve (0.2 ug/l for Mercury and 0.5 ug/l for Silver) have been substituted.

Table 4: Annual O&M Costs

Date From	Date To	Total Cost rounded to nearest \$100
Jan-96	Dec-96	\$129,000*
Jan-97	Dec-97	\$107,000*
Jan-98	Dec-98	\$199,000*
Jan-99	Dec-99	\$411,700
Jan-00	Dec-00	\$366,900
Jan-01	Dec-01	\$660,800**
Jan-02	Dec-02	\$317,000
Jan-03	Dec-03	\$408,400
Jan-04	Dec-04	\$499,400
Jan-05	Dec-05	\$304,600
Average		\$340,380

* Partial O&M costs (OU1); OU2 completed Dec 1998

** OU2 leachate line directed to combine with OU1 influent flow for treatment during this year. Cost reflects new construction, site repairs and additional labor and engineering associated with the improvements.

Table 5: Comparison of Initial and Current Leachate Concentrations

Constituent	Basis for Design 1995 (mg/l)	2000 Average (mg/l)	2001 Average (mg/l)	2002 Average (mg/l)	2003 Average (mg/l)	2004 Average (mg/l)	2005 Average (mg/l)	Action Limit (mg/l)
Biological Oxygen	2600	53	171.5	117	64	162	75.5	Report
Nickel	0.19	<0.05	<0.05	0.02	0.03	0.03	0.03	0.16
Methylene Chloride	2.9	1.1	2.8	0.687	0.72	2.16	1.015	Report
Benzene	0.14	0.008	0.018	0.0065	<0.05	<0.05	<0.05	0.005
Phenol	29	0.29	1.07	0.345	0.36	0.12	0.27	0.1
TCE	0.38	0.012	0.085	0.019	0.037	0.057	0.037	0.005
Total Suspended Solids	160	32	19	26	10.5	29	19.5	Report

Table 6: Influent Parameters

ROD		KPDES		General Parameters (mg/L) unless otherwise noted																							
		2/10/1999	4/28/1999	5/26/1999	6/30/1999	7/28/1999	8/30/1999	11/1/1999	11/22/1999	12/29/1999	2/7/2000	3/6/2000	3/29/2000	1/3/2001	6/25/2001	6/12/2002	12/11/2002	6/13/2003	12/5/2003	6/3/2004	12/15/2004	6/24/2005	1/4/2006				
BOD			110		52.3	37.8	34.4	55.1	49.9	58.3	76.9	55.6	25	180	163	123	111	81	47	104	220	51	53				
COD			270	250	232	173	189	244	287	291	293	278	269	180	404	410	254	290	197	120	254	340	190	180			
N(NH3)			20	16	6.8	14.7	12.9	7.83	14.9	6.74	12.6	7.85	5.23		15.5	5.35	9	8	6.9	6	4	5.9	7.1	8.3			
N(K)			17	20	15.2	16	16		19	20	21	18.1	19	12	14	15	12	9	10	7.9	6	6.4	7.6	6.6	9.2		
N(NO3)																	0.55				0.4	0.41	0.15				
N(NO2)																		0.007			0.6	0.15					
N(NO2+N03)												0.25	0.27	0.15	0.28	<0.10	0.55	0.5	0.007		0.4						
TOC			89	75	54.9	46.6	52.5	62.1	76	76	151	78	56.5	59	123	86	120	55	49.3	42	75.9	166.2	41.8	50			
pH (s.u.)			7.9	6.9	6.77	7.03	6.8	6.88	6.79	7.02	7.47	7.83	7.63	7.31	7.74	6.7	6.8	7.82	6.67	7	6.6	7.2	6.86	7.5			
TDS			1300	1400	1290	1390		1720	1740	1690	1670	1540	1490	1450	1450	1430	1290	1300	1310	1424	1480	1500	1500	1500			
TSS			31	10	36	20	29	36	28	107	19	16	16	14	26	12	42	10	11	10	29	<5	284	13			
Turbidity (NTU)			200	160	154	153	155	110	186	196	38	30.5	38.2	67.5	191	91.6	54	300	100	36.6	5.1	190	2.8	180			
Metals (mg/L)																											
Antimony	0.062	1.6																									
Arsenic	0.011	0.05	0.0023	0.0021											<0.1	<0.1											
Barium	0.231		0.65	0.49	0.51	0.44	0.44	0.43	0.53	0.7	0.65	0.63	0.1	0.5	0.365	0.286	0.1	0.19	0.12	0.09	0.12	0.8	0.22	0.16			
Beryllium		0.0053																									
Cadmium		0.0011																									
Calcium			160	150	134	132	143	156	156	139	138	135	53.3	127	118	121	100	120	110	110	124	127	124	120			
Chromium	0.011	0.011																									
Copper		0.012																									
Iron		1	20	15	15.7	17.8	14.9	10.7	14.7	22.3	8.63	4.15	0.1	7.58	7.15	7.79	4.3	8	5.98	9.18	7.5	51.6	60.4	4.83			
Lead		0.0032																									
Magnesium			97	94	89.9	84.6	98.1	102	101	88.9	96	93.2	84.7	98	93.1	91.6	89	92	120	96.7	119	110	112	110			
Manganese			2.1	2	1.85	1.6	1.95	1.91	1.77	1.49	1.69	1.46	1.46	1.37	1.85	2.29	1.8	1.51	1.69	1.4	1.71	1.57	1.52	1.2			
Nickel	0.16		0.021												<0.05	<0.05		0.02	0.03	0.03	0.03		0.09	0.02			
Selenium	0.005		0.0058	0.0035											<0.10	<0.10						0.08					
Zinc	0.11		0.0029												<0.02	<0.02		0.02	0.05	0.03		0.1	0.14	0.04			
Volatile organics (µg/L) by method SW8260																											
Acetone			5100	7000	5000		3000	3800	2300	200	5300	4500	2700		12000	13000	1840	4100	3040	4840	2130	6690	502	9200			
Chloroethane												8															
1,1-DCE	5								18	5		8			19	14		7				14		53			
cis 1,2-DCE									17	5		11			14	15	7					8					
1,1-DCA	5								44	5	42	41	10		59	75		71		48	68	148	22	290			
Chloroform			330		590	590	590	590	300	5	42	300	130		740	950		178	550	310	422	1230	189	1000			
2-Butanone					2300		1200	1600	1200	100	2700	2100	1700		4700	5500	7	2070	1390	1480	883	4060	362	1100			
1,2-Dichloropropane	5		100																								
4-Meth-2-Pentanone			76						410	10	880	500	480		1400	1400	260	604		520	221	1050					
2-Hexanone									11	10	50	21	12		31	29				17							
Methylene Chloride	5		1100	2200	1700	1700	750	750	840	50	1400	1000	470		2700	2900	450	924	800	640	1390	2930	109	8400			
1,1,2,2-Tetrachloroethane	5			130					68	5	98	85	61		170	150	68	84	100	62	238	45					
Toluene	5		200						77	5	92	100	32		150	150		55		39	112	25		400			
Benzene	5								22	5		22	8		15	21	5	8									
Ethylbenzene	5								20	5		45	31		23	39	6	10				14					
m-, and p-Xylene									280		260	350	150		150	200		43		15		38					
o-Xylene										5								11		5		14	6				
1,1,2-TCA	5		310						160	5	67	190	120		350	370	139	178	140	99	160	500	78	460			
1,1,1-TCA	5		130						52	5		46			73	67	13	15	70	21		43	11	120			
Semi-volatile organics (µg/L) by method SW8270																											
TCE	5								28	5	32	34	12		78	92	12	26	50	24	50	64	20	240			
Isophorone			93		53	33	32	42	60		11	69	54		130	140	50	60	580	60	60	136		46			
2,4-Dimethylphenol												13	13		17									14			
2-Methylphenol			76	110	59	41	34	43	58		71	64	44		110	160	60				50			48			
Phenol			470	990	360		200		54	31	490		330		940	1200	290	400	320	400	140	100		140			
4-Methylphenol					64	42	29	49	66			65	44		130	160											
Naphthalene					110	110		110																			
2-methNaph					26	26	26																				
Hexachlorocyclopentadiene					28																						
bis 2-ethylhexyl) phthalate										10																	
2,2-oxybis (1-Chloropropane											71																

Table 7: Effluent Parameters Summary

Effluent Parameters	Applicable						To Be Considered		
	7/10/1997 KPDES letter ⁴	9/17/1993 ROD	1999 LAW O&M Manual Table L.1	2002 Current MACTECH O&M Manual Table L.1	401 KAR 5:031 Surface Water Standards ⁴	401 KAR 34:060 Groundwater Standards	Comments	40 CFR 141 Subpart G MCLs ⁵	40 CFR 141 Subpart F MCLGs ⁵
Arsenic ¹	0.050 mg/l	0.011 mg/l	0.011 mg/l	0.011 mg/l	0.01 mg/l	0.050 mg/l		0.010 mg/l	0.0 mg/l
Barium		0.231 mg/l	0.231 mg/l	0.231 mg/l	1 mg/l	2 mg/l		2 mg/l	2 mg/l
Beryllium ¹	0.0053 mg/l		0.0053 mg/l	0.0053 mg/l	0.004 mg/l	0.004 mg/l		0.004 mg/l	0.004 mg/l
Cadmium ¹	0.0011 mg/l		0.0011 mg/l	0.0011 mg/l	0.005 mg/l	0.005 mg/l		0.005 mg/l	0.005 mg/l
Hexavalent Chromium	0.011 mg/l	0.011 mg/l	0.011 mg/l	0.011 mg/l		0.1 mg/l		0.1 mg/l	0.1 mg/l
Copper ¹	0.012 mg/l		0.012 mg/l	0.012 mg/l	1.3 mg/l			1.3 ppm ¹	1.3 ppm ¹
Free Cyanide	0.005 mg/l		0.005 mg/l	0.005 mg/l	0.7 mg/l	0.2 mg/l		0.2 mg/l	0.2 mg/l
Iron ¹	1.0 mg/l		1.0 mg/l	1.0 mg/l					
Lead ¹	0.0032 mg/l		0.0032 mg/l	0.0032 mg/l	0.015 mg/l	0.05 mg/l		0.015 mg/L ¹	0.0 mg/l
Mercury ¹	0.000012 mg/l		0.0002 mg/l ²	0.0002 mg/l ²	0.002 mg/l	0.002 mg/l		0.002 mg/l	0.002 mg/l
Nickel ¹	0.160 mg/l		0.160 mg/l	0.160 mg/l	0.61 mg/l	0.1 mg/l			
Selenium ¹	0.005 mg/l		0.005 mg/l	0.005 mg/l	0.17 mg/l	0.05 mg/l		0.05 mg/l	0.05 mg/l
Silver ¹	0.00012 mg/l		0.0005 mg/l ¹	0.0005 mg/l ¹		0.05 mg/l			
Thallium ¹	0.040 mg/l	0.011 mg/l	0.011 mg/l	0.011 mg/l	0.0017 mg/l	0.002 mg/l		0.002 mg/l	0.0005 mg/l
Zinc ¹	0.110 mg/l		0.110 mg/l	0.110 mg/l	7.4 mg/l				
2-chlorophenol		0.023 mg/l	0.023 mg/l	0.023 mg/l	0.081 mg/l				
Methylene Chloride	< 0.005 mg/l	5.870 mg/l	< 0.005 mg/l	< 0.005 mg/l	0.0046 mg/l	0.005 mg/l			
Nitrobenzene		0.250 mg/l	0.250 mg/l	0.250 mg/l	0.017 mg/l				
N-nitroso-di-n-propylamine		0.011 mg/l	0.011 mg/l	0.011 mg/l	0.0033 mg/l				
1,1-Dichloroethane	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l					
1,1-Dichloroethylene, total	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.00057 mg/l	0.007 mg/l		0.007 mg/l	0.007 mg/l
1,2-Dichloroethane	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.00038 mg/l	0.005 mg/l		0.005 mg/l	0.0 mg/l
1,2-Dichloropropane	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.0005 mg/l	0.005 mg/l		0.005 mg/l	0.0 mg/l
Trichloroethylene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.0025 mg/l	0.005 mg/l		0.005 mg/l	0.0 mg/l
Benzene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.0022 mg/l	0.005 mg/l		0.005 mg/l	0.0 mg/l
1,1,2-Trichloroethane	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.00059 mg/l	0.005 mg/l		0.005 mg/l	0.003 mg/l
Tetrachloroethylene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.00069 mg/l	0.005 mg/l		0.005 mg/l	0.0 mg/l
Toluene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	6.8 mg/l	1 mg/l		1 mg/l	1 mg/l
Ethylbenzene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	3.1 mg/l			0.7 mg/l	0.7 mg/l
1,2-Dichlorobenzene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	2.7 mg/l	0.6 mg/l		0.6 mg/l	0.6 mg/l
1,4-Dichlorobenzene	< 0.005 mg/l		< 0.005 mg/l	< 0.005 mg/l	0.4 mg/l	0.075 mg/l		0.075 mg/l	0.075 mg/l
Phenol	< 0.005 mg/l	365.000 mg/l	< 0.010 mg/l ³	< 0.010 mg/l ³	21 mg/l		discrepancy unresolved		
2,4-Dimethylphenol	< 0.005 mg/l	4.570 mg/l	< 0.010 mg/l ³	< 0.010 mg/l ³	0.38 mg/l		discrepancy unresolved		
Butyl benzyl phthalate	< 0.005 mg/l		< 0.010 mg/l ³	< 0.010 mg/l ³	1.5 mg/l		discrepancy unresolved		

Note: Parameters listed in the above table with an () were indicated in the 7/10/97 letter from Kentucky Department of Environmental Protection to Law Environmental as "Total Recovery"

¹Note: MACTECH O&M Manual (2002) stated the discharge limits for mercury and silver were established during design, as criteria required of the equipment manufacturers and the installation contractor. The effluent discharge criteria were established as 0.000012 mg/l Mercury and 0.00012 mg/l for Silver. These detection levels are not currently achievable, therefore, the lowest possible reporting levels the laboratory can achieve (0.0002 mg/l Mercury and 0.0005 mg/l Silver) have been established. Other laboratory limits should be evaluated in the future with respect to permit requirements.

²Note: No explanation defining the difference between design criteria (O&M Manual) and KDEP for the three indicated parameters have been identified.

³Note: Allowable instream concentrations for Human Health Domestic Water Supply

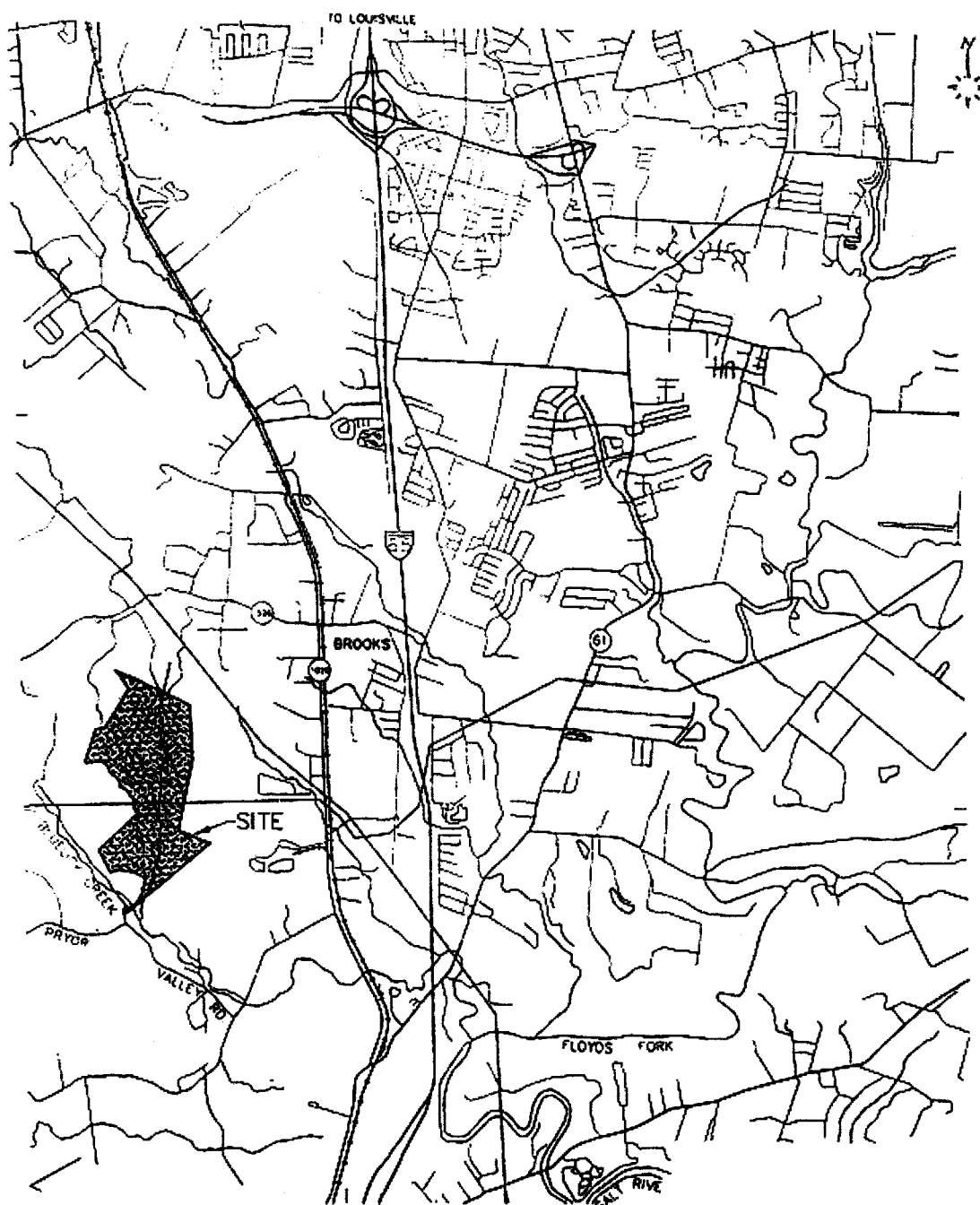
⁴Federal Drinking Water Standards, 40 CFR 141

⁵Action Level for analyte as listed in Appendix A Part C 40 CFR 141

**Table 8: Smith's Farm Landfill
2006 5-year Review Recommendations**

Issue	Recommendations	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
Erosion	Repair eroded areas of cap	PRP	EPA	Quarterly Reports	N	N
Stressed Vegetation	Repair areas of stressed vegetation	PRP	EPA	Quarterly Reports	N	N
Groundwater Monitoring	Plot contaminant concentrations on site map as part of the annual report in order to monitor concentrations within the landfill and determine if the leachate capture system is successfully preventing migration off site	PRP	EPA	2006 Annual Report	N	N
Gas Venting	Conduct evaluation to determine whether gaseous emissions should be monitored to ensure the effectiveness of the existing vent system	PRP	EPA	2007 Annual Report	N	N
Vandalism/Trespassing	Consider implementing more progressive trespassing and vandalism control measures	PRP	EPA	On-going	N	N
Data Reporting	An evaluation of detection limits and reporting limits as compared to permit limits should be included in the parameters reported	PRP	EPA	2006 Annual Report	N	N
Data Reporting	Annual reports should plot the influent and effluent concentrations versus time to show annual variability and overall site progress	PRP	EPA	2006 Annual Report	N	N

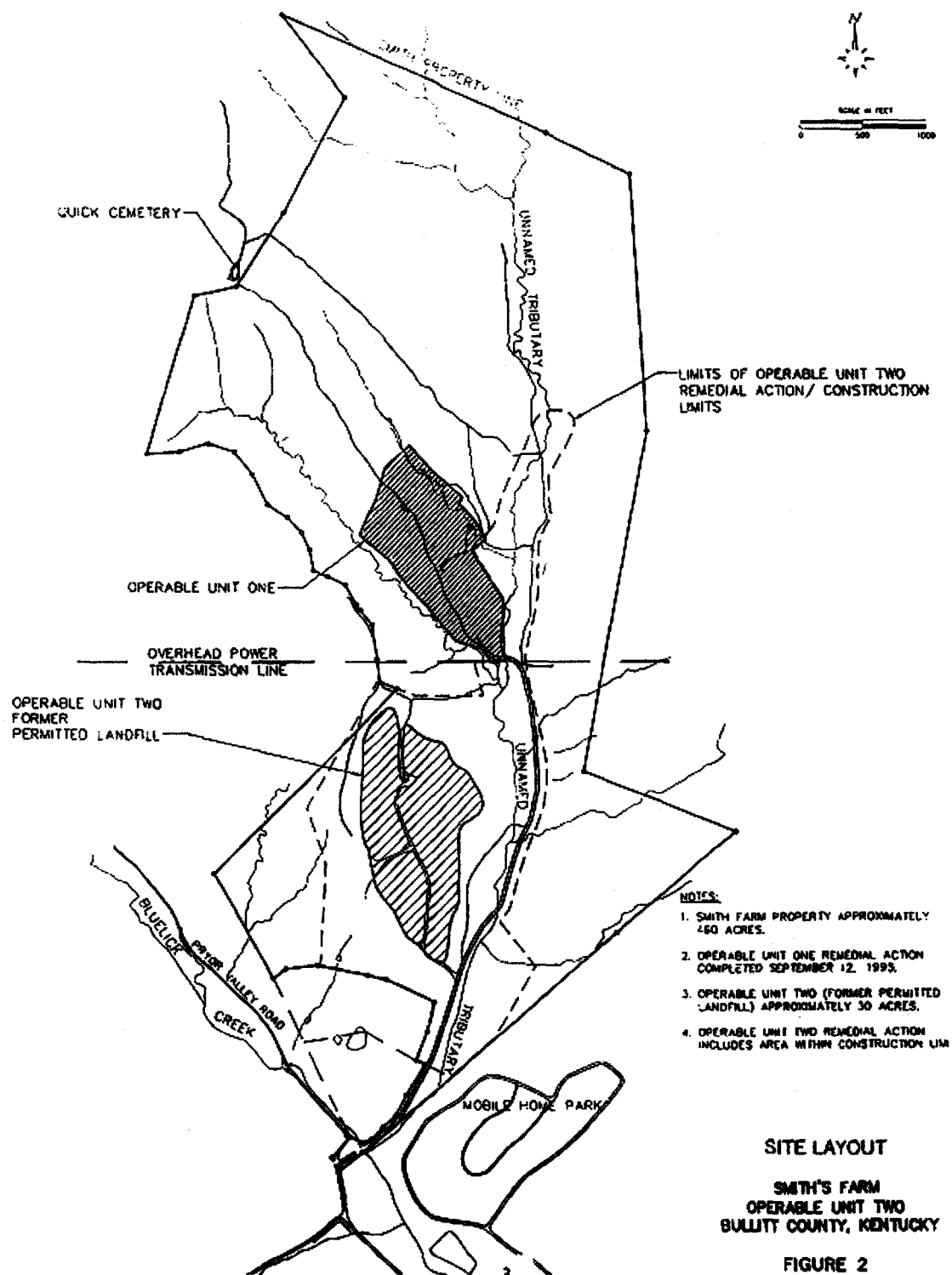
FIGURES



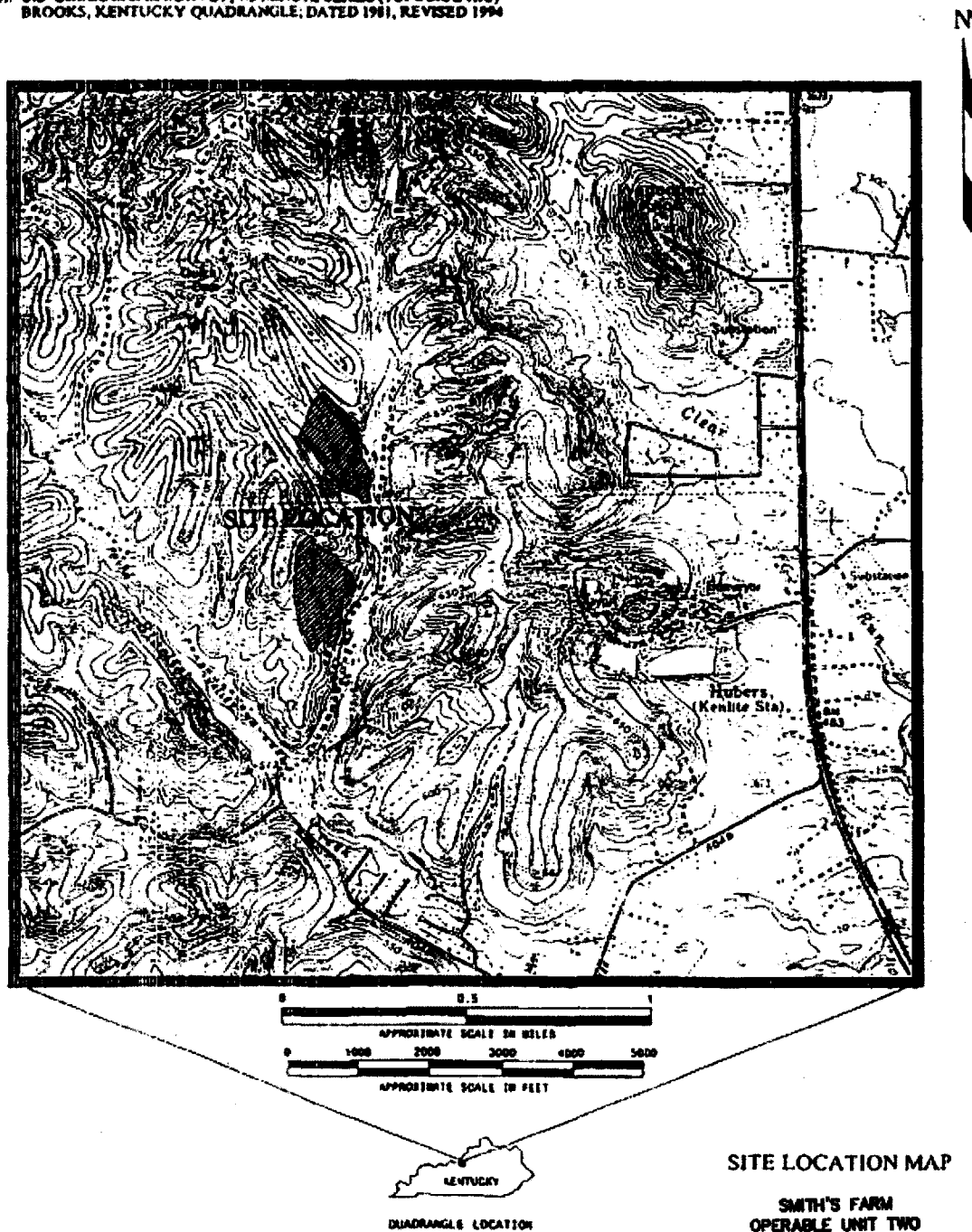
SCALE IN MILES
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SITE LOCATION MAP
SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

FIGURE 1



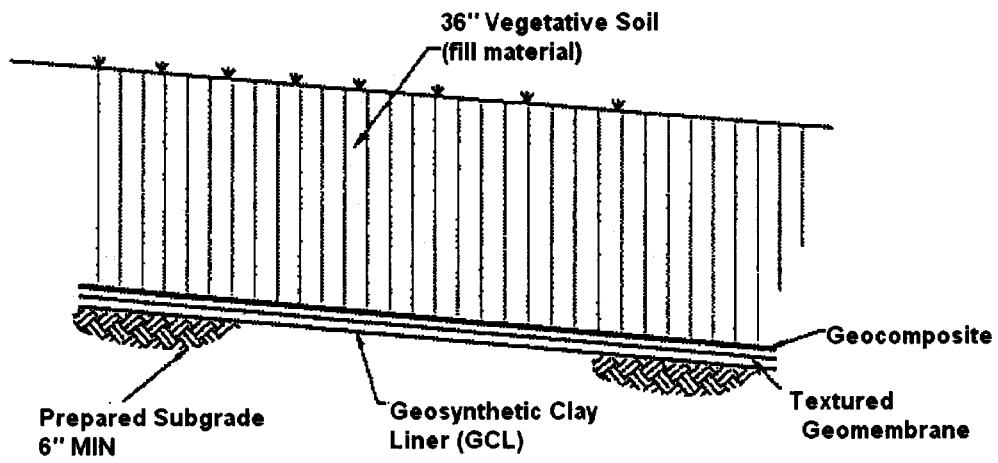
SOURCE: U.S. GEOLOGICAL SURVEY; 7.5 MINUTE SERIES (TOPOGRAPHIC)
BROOKS, KENTUCKY QUADRANGLE; DATED 1981, REVISED 1994



SITE LOCATION MAP

SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

FIGURE 3



NTS

FIGURE 4
LANDFILL COVER SYSTEM SECTION

3
TYP

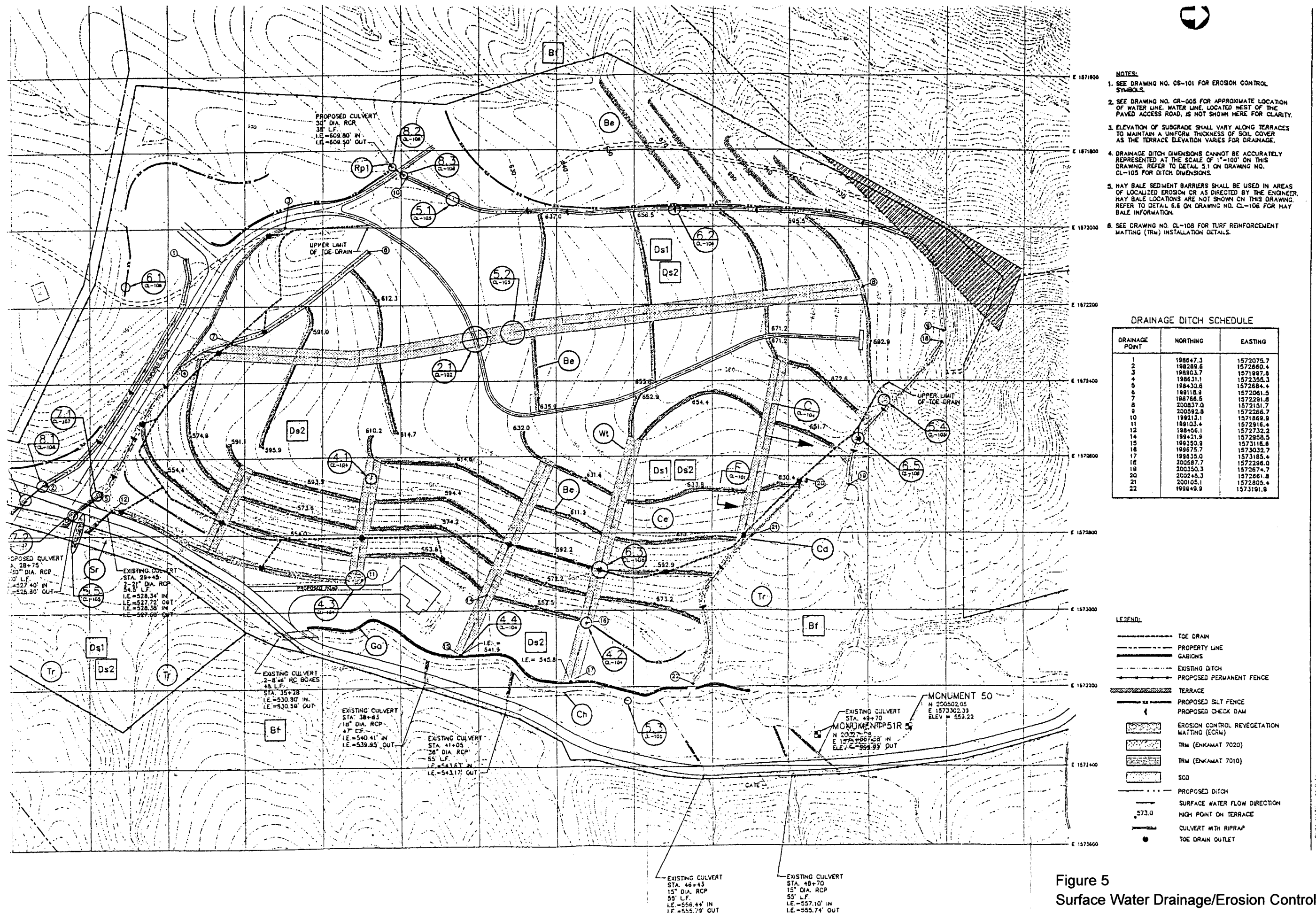
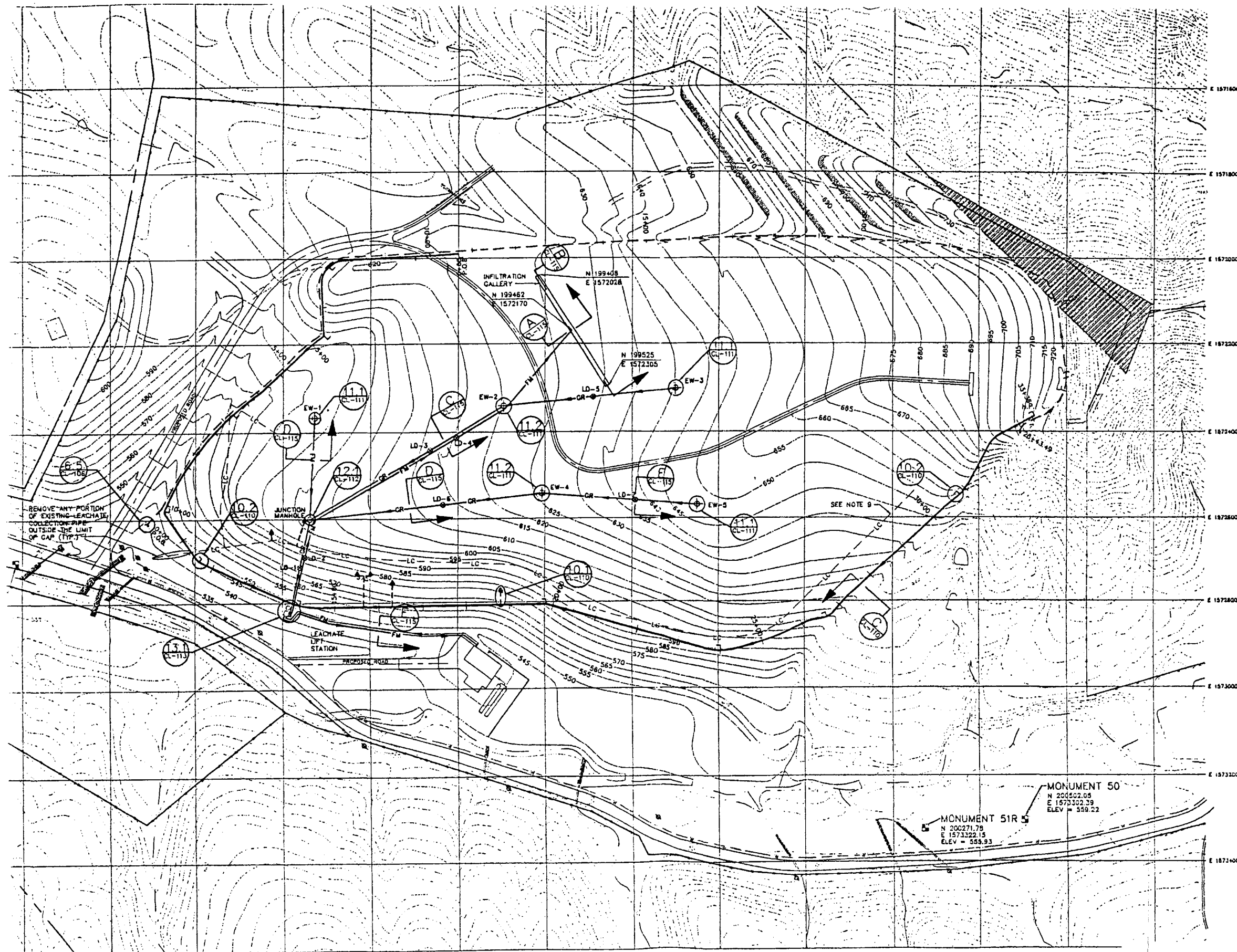


Figure 5
Surface Water Drainage/Erosion Control



- NOTES:
1. LOCATIONS OF EXISTING SURFACE AND SUBSURFACE STRUCTURES ARE APPROXIMATE. FIELD LOCATION OF STRUCTURES WILL REQUIRE CONTRACTORS VERIFICATION.
 2. EXTEND INVERT ELEVATION OF EXTRACTION WELLS THREE FEET BELOW TOP OF SHALE FORMATION.
 3. SEE DWG. CL-021 FOR LOCATION AND ELEVATIONS OF LEACHATE COLLECTION TRENCH PIPE.
 4. SEE DWGS. CL-022 FOR LOCATION AND ELEVATIONS OF GROUND WATER INTERCEPTOR TRENCH.
 5. SEE DWG. CL-111 FOR DETAILS OF THE EXTRACTION WELL MANHOLES.
 6. SEE DWG. CL-007 FOR LEACHATE PLANT AND SEPTIC SYSTEM LAYOUT PLAN.
 7. SEE DWG. ME-012 FOR LIFT STATION PIPING DETAILS.
 8. SEE DWG. ME-013 FOR EXTRACTION WELL PIPING DETAILS.
 9. EXISTING 4" DIA. OR 8" DIA. SCHEDULE 40 PVC PIPE, DEPTH UNKNOWN.
 10. LOCATION AND EXTENT OF BOTH LEACHATE SEEPS AND LEACHATE SEEP INTERCEPTOR TRENCH ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BEFORE CONSTRUCTION.
 11. SEE DWG. CL-007 FOR ACCURATE DEPICTION OF LEACHATE LIFT STATION. LIFT STATION DEPICTED GRAPHICALLY ON THIS SHEET FOR CLARITY AND IS NOT TO SCALE.

LEACHATE COLLECTION SYSTEM
SCHEDULE LOCATION

	DEPTH*	NORTHING	EASTING
EW-1	26 FEET	198872	1572366
EW-2	35 FEET	199305	1572340
EW-3	25 FEET	198700	1572300
EW-4	37 FEET	199392	1572541
EW-5	47 FEET	198750	1572568
JUNCTION MANHOLE		198862	1572699
LD-1	N/A	198838	1572715
LD-2	N/A	198850	1572691
LD-3	N/A	199134	1572440
LD-4	N/A	199195	1572412
LD-5	N/A	198506	1572319
LD-6	N/A	199164	1572566
LD-7	N/A	198808	1572557

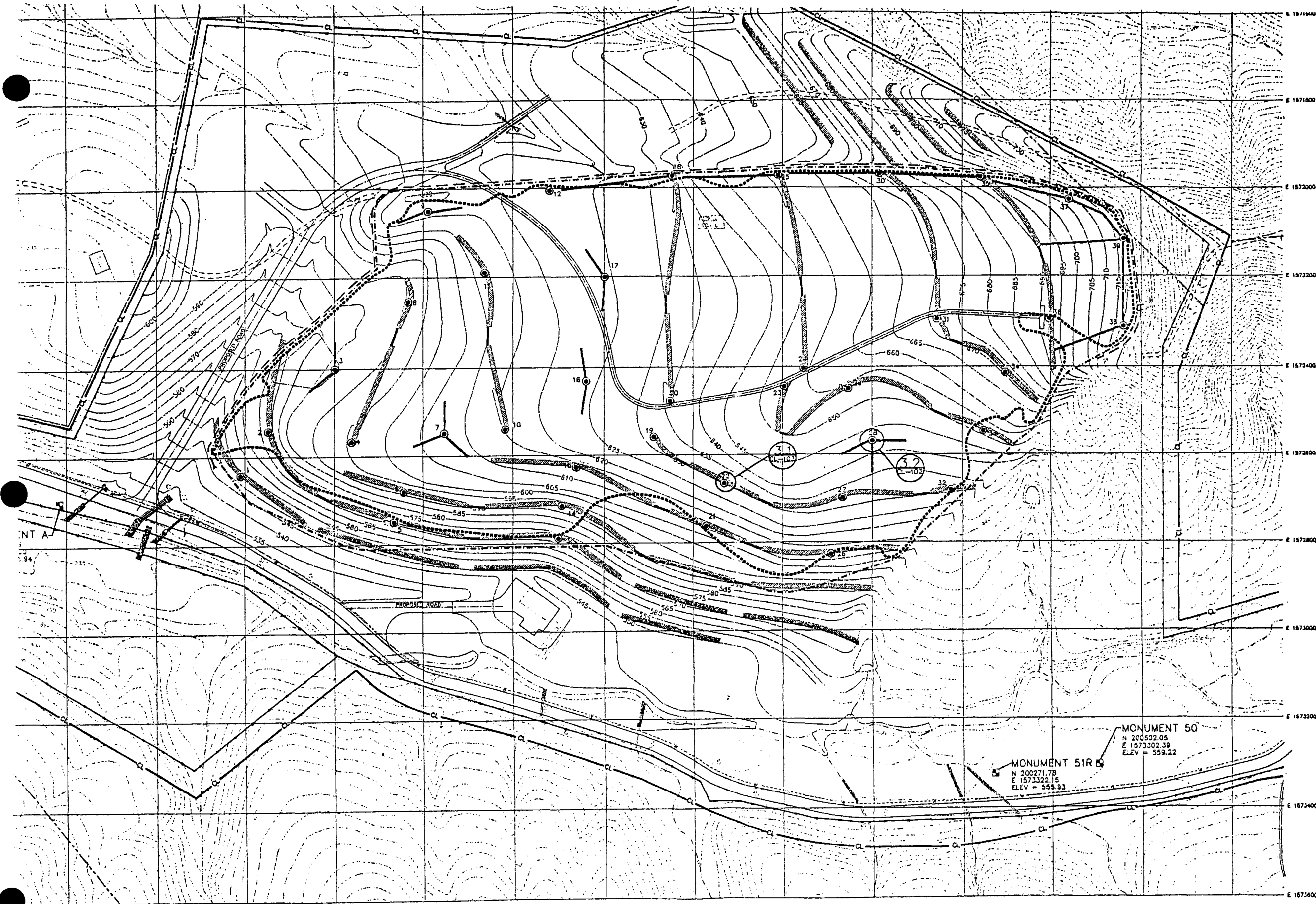
SEE PLAN VIEW FOR COORDINATES FOR INFILTRATION GALLERY

* APPROXIMATE DEPTH OF EXTRACTION WELLS FROM FINAL GRADE TO BOTTOM OF WASTE. FOR DEPTH OF JUNCTION MANHOLE SEE DRAWING CL-112

LEGEND:

- LC — APPROXIMATE LOCATION OF EXISTING LEACHATE COLLECTION PIPE
- PROPOSED PERIMETER LEACHATE COLLECTION TRENCH WITH STATION MARKS
- GR — PROPOSED LEACHATE GRAVITY LINE
- FM — PROPOSED LEACHATE FORCE MAIN
- GROUND WATER INTERCEPTOR TRENCH WITH TRENCH DISCHARGE POINT
- LEACHATE COLLECTION PIPE CLEANOUT AND VENT
- EW-2 PROPOSED LEACHATE EXTRACTION WELL
- MANHOLE LEACHATE MANHOLE
- APPROXIMATE LOCATION OF LEACHATE SEEP INTERCEPTOR TRENCH
- APPROXIMATE LOCATION OF LEACHATE SEEP
- LD-1 LEACHATE DETECTION POINT
- P.O.B. POINT OF BEGINNING

Figure 6
Leachate Collection System, OU2

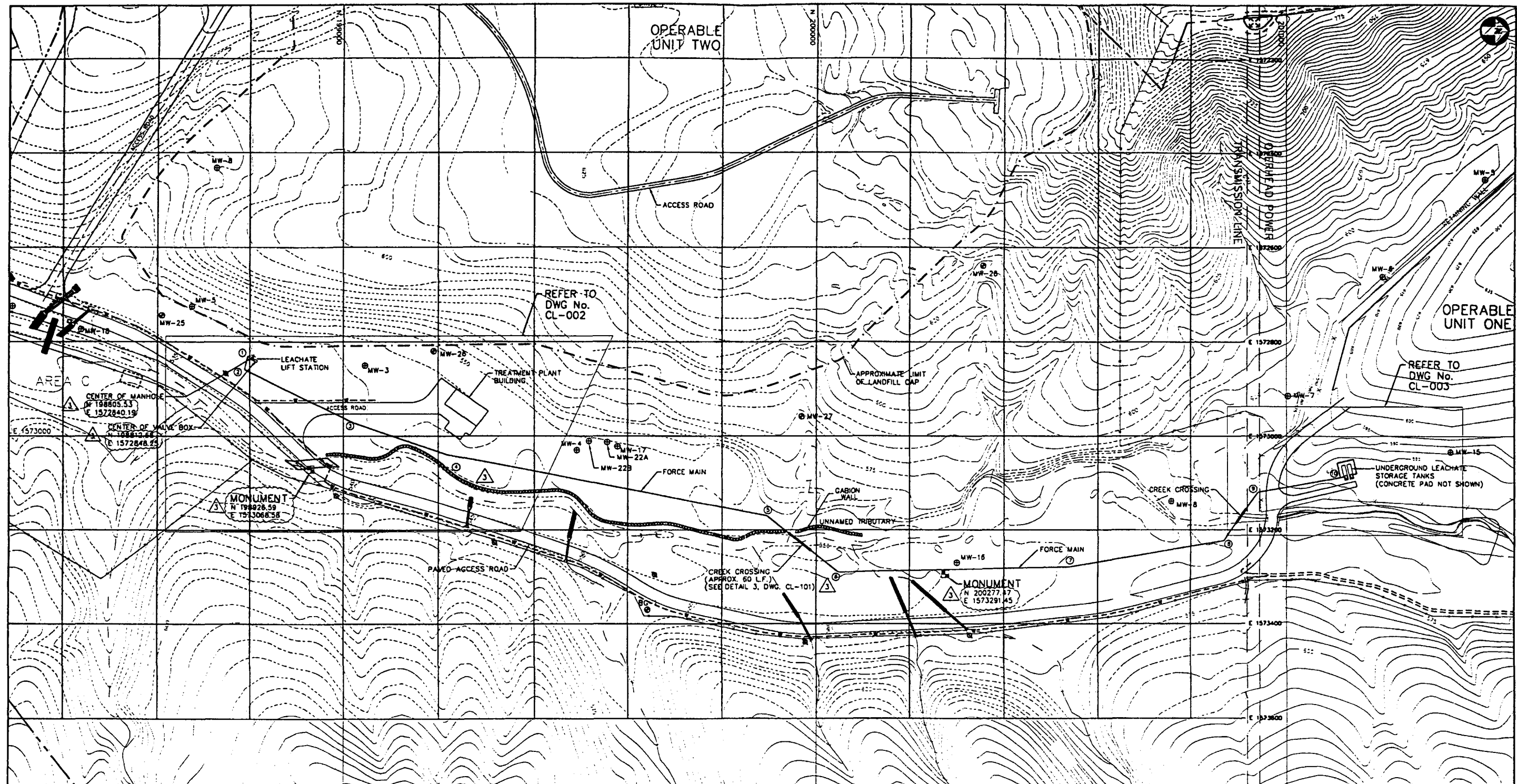


GAS VENT SCHEDULE		
VENT NUMBER	NORTHING	EASTING
1	198588.7	1572641.6
2	198650.2	1572539.7
3	198600.0	1572400.0
4	198837.1	1572564.6
5	198932.3	1572748.9
6	198954.2	1572680.4
7	199047.0	1572548.6
8	198965.1	1572252.4
9	199010.0	1572050.0
10	199181.9	1572537.9
11	199134.7	1572189.4
12	199279.3	1572004.9
13	199298.4	1572787.5
14	199309.9	1572714.1
15	199338.0	1572628.9
16	199360.0	1572430.0
17	199400.0	1572200.0
18	199551.9	1571973.1
19	199511.3	1572557.4
20	199546.9	1572476.1
21	199628.8	1572761.7
22	199689.6	1572644.8
23	199803.1	1572443.7
24	199846.9	1572402.6
25	199789.5	1571971.8
26	199908.8	1572825.5
27	199933.9	1572699.1
28	200000.0	1572567.5
29	199946.9	1572448.1
30	200014.5	1571968.8
31	200142.0	1572293.6
32	200172.0	1572680.9
33	200247.1	1572544.6
34	200296.6	1572413.1
35	200240.4	1571976.8
36	200396.7	1572293.3
37	200440.0	1572025.0
38	200560.0	1572310.0
39	200560.0	1572115.0

- NOTE:
1. GAS VENTS TO BE CONSTRUCTED ON TERRACE SHALL BE CONSTRUCTED ON THE FRONT EDGE OF THE TERRACE.
 2. GAS VENTS LOCATED ADJACENT TO WESTERLY OF LANDFILLS SHALL BE LOCATED A MINIMUM SIX FEET FROM THE VERTICAL FACE OF THE TRENCH.

- LEGEND:
- PROPOSED GAS VENT AND DESIGNATION
 - GAS VENTING GEOCOMPOSITE
 - TERRACE WITH GAS VENTING GEOCOMPOSITE
 - TERRACE WITHOUT GAS VENTING GEOCOMPOSITE

Figure 7
Gas Control System



FORCE MAIN ALIGNMENT		
POINT No.	NORTH	EAST
1	198796	1572829
2	198789	1572857
3	198820	1572867
4	198815.8	1572862
5	198895	1573040.5
6	198895	1573170
7	200047.8	1573290.9
8	200539	1573279
9	200871	1573223
10	200942	1573120
11	201111	1573080

LEGEND:	
—W—W—	EXIST. WATER LINE
—	EXISTING GABIONS
■	EXISTING BENCHMARK
—	PROPOSED FORCE MAIN
---	PROPERTY LINE
—	EXISTING FENCE
---	EXISTING CONTOUR
---	EXISTING DITCH
⊕	EXISTING MONITORING WELL
MW-20	

- NOTES: 1. TOPOGRAPHIC CONTOURS SHOWN ON THIS DRAWING WERE OBTAINED FROM CONTRACT DRAWINGS FOR REMEDIAL ACTION. NOT ALL CONTOURS HAVE BEEN UPDATED TO REFLECT AS-BUILT INFORMATION.
2. THIS DRAWING DEPICTS THE CONSTRUCTION AREA IN ITS ENTIRETY. DETAILED INFORMATION FOR THE FORCE MAIN LAYOUT IS PROVIDED ON THE REFERENCED DRAWINGS.
3. CONTRACTOR SHALL USE CAUTION WHEN WORKING IN THE VICINITY OF OVERHEAD POWER LINES AND OTHER UTILITIES, AND SHALL OBSERVE SAFE WORK PRACTICES.
4. CONTRACTOR SHALL PROTECT EXISTING GABIONS BETWEEN ALIGNMENT POINTS 5 AND 6. GABIONS THAT ARE DAMAGED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. FORCE MAIN ALIGNMENT MAY REQUIRE ADJUSTMENT, DEPENDING ON SITE CONDITIONS. ALIGNMENT ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER. INSTALL ELBOW FITTINGS AT INDICATED LOCATIONS. AT OTHER PIPE BENDS, INSTALL ELBOWS OR BEND PIPE TO MINIMUM RADIUS IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS.

THESE DRAWINGS HAVE BEEN REVISED TO RECORD CHANGES MADE DURING CONSTRUCTION BASED ON AVAILABLE INFORMATION, AND DO NOT NECESSARILY REFLECT ALL DETAILS OF THE PROJECT AS ACTUALLY BUILT.

SURVEYED COORDINATES FOR FORCE MAIN, MONUMENTS AND LEACHATE LIFT STATION WERE PROVIDED BY FORCE MAIN CONTRACTOR'S SURVEYOR.

SCALE: 1" = 100'

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DATE: 3/2/01 10:38 am
CADD FILE: J:\smith02\smi-002\as-buil\smi-main.dwg
PLOT DATE:

REV	DATE	BY	APP	DESCRIPTION
3	3/2/01	SA	JLS	CONSTRUCTION REVISIONS
2	8/7/00	SAL	JLS	RELEASED FOR CONSTRUCTION
1	5/19/00	SAL	JLS	REISSUED FOR BIDDING

DESIGNED S.A. LIND	SMITH'S FARM OPERABLE UNITS ONE AND TWO BULLITT COUNTY, KENTUCKY
CHECKED C. BUDSOCK/M. ZUNIGA	
CHECKED J. STUDER	
IN CHARGE J. STUDER	
DATE 10 AUG 99	APPROVED

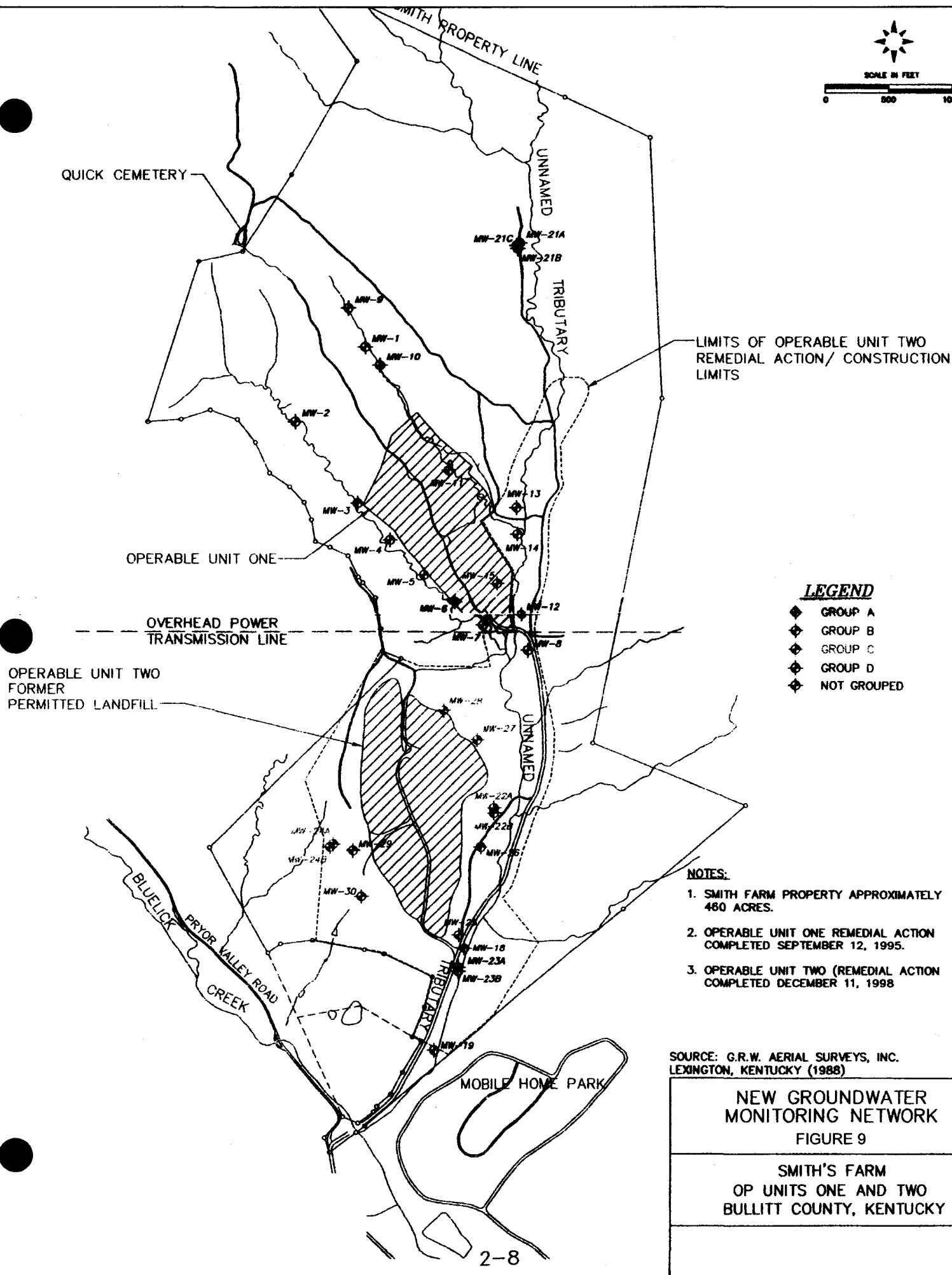
SCALE: AS SHOWN

FIGURE 8

CONTRACT 12000-8-0206	CL-001	3	3
REVISION NO.			



SCALE IN FEET
0 500 1000



STREAM NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
STREAM IDENTIFIER	Units	System Inlet	24% NH ₄ OH	75% H ₂ PO ₄	Air Stream	SBR Outlet	SBR Sludge Waste	20% NaOH	0.1% Polymer	Wt. Sludge Out	93.18% H ₂ SO ₄	Air Stripper Feed Tank Inlet	Stripper - Inlet	Stripper - Outlet	Air Stream	Carbon - Out	Sludge C. Feed	Sludge Thickening Tank Out	Solids from Press
FLOW RATE	GPM	20.00	0.0118	0.0005	407 cfm	22.88	0.36	0.0371	0.0113	2.30	0.0032	20.25	20.25	20.25	350 cfm	20.25	0.21	1.84	3.04
TOTAL MASS FLOW	lb/hr	10,000.0	5.1	0.4	11,364.9	179.2	22.8	2.2	5.7	1,288.3	2.8	8,789.9	8,789.9	8,789.9	---	8,789.9	111.51	415.7	39.8
METALS AND SOLIDS	ug/L	800	0	0	---	800	---	0	0	---	0	150	150	150	---	---	---	---	---
BARIUM	ug/L	12	0	0	---	12	---	0	0	---	0	560	560	560	---	---	---	---	---
CHROMIUM	ug/L	140,000	0	0	---	140,000	---	0	0	---	0	42,000	42,000	42,000	---	---	---	---	---
IRON	ug/L	80,000	0	0	---	80,000	---	0	0	---	0	44	44	44	---	---	---	---	---
MAGNESIUM	ug/L	190	0	0	---	190	---	0	0	---	0	20	20	20	---	---	---	---	---
NICKEL	ug/L	48	0	0	---	48	---	0	0	---	0	23	23	23	---	---	---	---	---
ZINC	ug/L	58	0	0	---	58	---	0	0	---	0	25	25	25	---	---	---	---	---
THALLIUM	ug/L	36	0	0	---	36	---	0	0	---	0	4	4	4	---	---	---	---	---
ARSENIC	ug/L	7	0	0	---	7	---	0	0	---	0	500 (est)	500 (est)	500 (est)	---	---	---	---	---
LEAD, TOTAL	ug/L	2,600	0	0	---	2,600	---	0	0	---	0	10,000	10,000	10,000	---	---	---	---	---
BOD	ug/L	180,000	0	0	---	180,000	---	0	0	---	0	0.1%	0.1%	0.1%	---	---	---	---	---
TOTAL SUSPENDED SOLIDS	ug/L	0.4%	---	---	---	0.4%	---	---	---	---	---	---	---	---	---	---	---	---	---
% SOLIDS	ug/L	2,900	0	0	---	2,900	---	0	0	---	0	2,900	2,900	2,900	---	---	---	---	---
VOLATILE COMPOUNDS	ug/L	430	0	0	---	430	---	0	0	---	0	430	430	430	---	---	---	---	---
METHYLENE CHLORIDE	ug/L	0	0	0	---	0	---	0	0	---	0	80	80	80	---	---	---	---	---
1,1-DICHLOROETHANE, TOTAL	ug/L	220	0	0	---	220	---	0	0	---	0	220	220	220	---	---	---	---	---
1,2-DICHLOROETHANE	ug/L	180	0	0	---	180	---	0	0	---	0	180	180	180	---	---	---	---	---
1,2-DICHLOROPROPANE	ug/L	380	0	0	---	380	---	0	0	---	0	380	380	380	---	---	---	---	---
TRICHLOROETHENE	ug/L	140	0	0	---	140	---	0	0	---	0	140	140	140	---	---	---	---	---
BENZENE	ug/L	260	0	0	---	260	---	0	0	---	0	260	260	260	---	---	---	---	---
1,1,2-TRICHLOROETHANE	ug/L	130	0	0	---	130	---	0	0	---	0	130	130	130	---	---	---	---	---
TETRACHLOROETHANE	ug/L	3,600	0	0	---	3,600	---	0	0	---	0	3,600	3,600	3,600	---	---	---	---	---
TOLUENE	ug/L	280	0	0	---	280	---	0	0	---	0	280	280	280	---	---	---	---	---
ETHYL BENZENE	ug/L	110	0	0	---	110	---	0	0	---	0	110	110	110	---	---	---	---	---
1,2-DICHLOROBENZENE	ug/L	220	0	0	---	220	---	0	0	---	0	220	220	220	---	---	---	---	---
1,4-DICHLOROBENZENE	ug/L	29,000	0	0	---	29,000	---	0	0	---	0	29,000	29,000	29,000	---	---	---	---	---
PHENOL	ug/L	7,400	0	0	---	7,400	---	0	0	---	0	7,400	7,400	7,400	---	---	---	---	---
2,4-DIMETHYLPHENOL	ug/L	15	0	0	---	15	---	0	0	---	0	15	15	15	---	---	---	---	---
BUTYL BENZYL PHthalate	ug/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES:

* = TOTAL MASS FLOW REPORTED IN POUNDS PER DAY FOR THE SLUDGE BASED UPON CONVERSION OF THE METAL TO THE HYDROXIDE AND ACTIVATED SLUDGE AT 40 WTS SOLID WITH 0.5 PRECOAT.

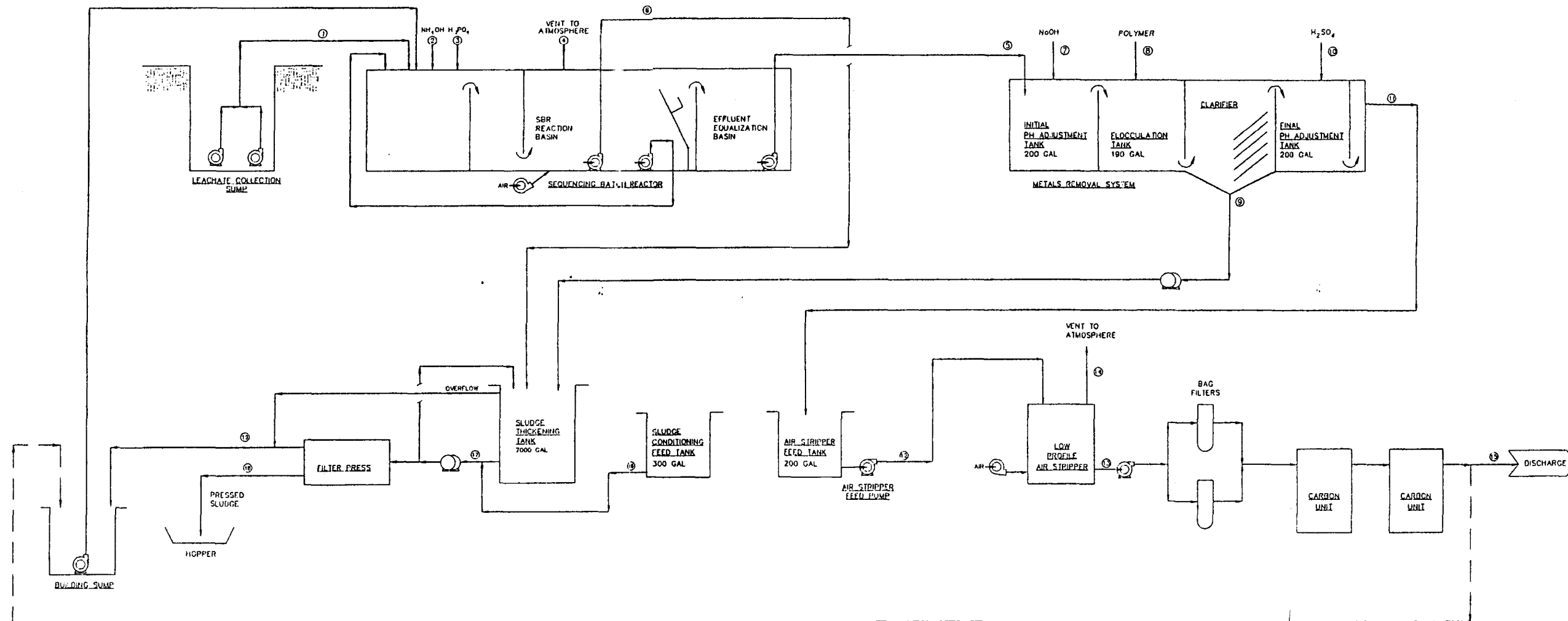
** = CONCENTRATIONS BASED UPON "TREATABILITY STUDY FOR LEACHATE FROM SMITH'S FARM OPERABLE UNIT TWO LANDFILL SITE", APRIL 1995.

*** = THESE COMPOUNDS ARE NOT SIGNIFICANTLY REMOVED BY AIR STRIPPING. EFFLUENT CONCENTRATION ASSUMED EQUAL TO INFLUENT CONCENTRATION AS A MAXIMUM.

GPM = GALLONS PER MINUTE

lb/hr = POUNDS PER HOUR

ug/L = MICROGRAMS PER LITER



REV	DATE	BY	CHKD	DESCRIPTION
1	15 NOV 95			

SMITH'S FARM OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

Figure 10
Process Flow Diagram

SCALE	NONE
CONTRACT	41-963508
REV	0
PI-002	63

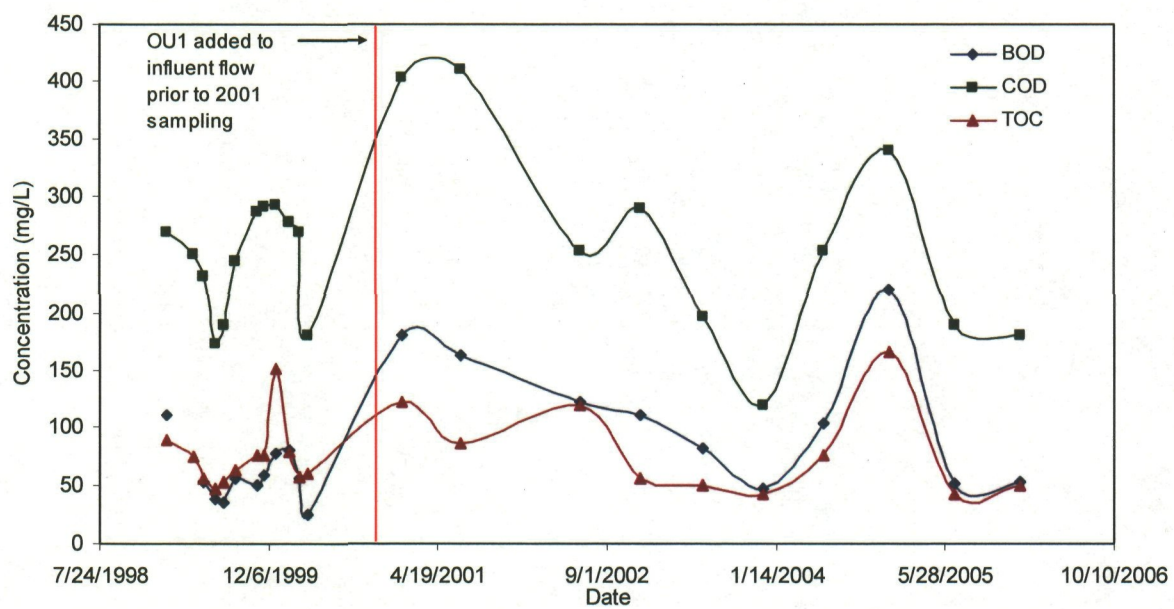


Figure 11
BOD, COD and TOC influent concentrations with time
Smith's Farm Landfill
Brooks County, KY

Photographs

**5-Year Review Site Visit
March 16, 2006**



Photo 1- Entrance Gate and Signs Posted.



Photo 2- Entrance Gate and Signs Posted



Photo 3- Inside Gate: looking toward leachate treatment facility; OU2 to left of structure, adjacent property and stream to right of photographer



Photo 4- Leachate Treatment Facility



Photo 5- Storage for Maintenance Equipment: Adjacent to Leachate Treatment Structure

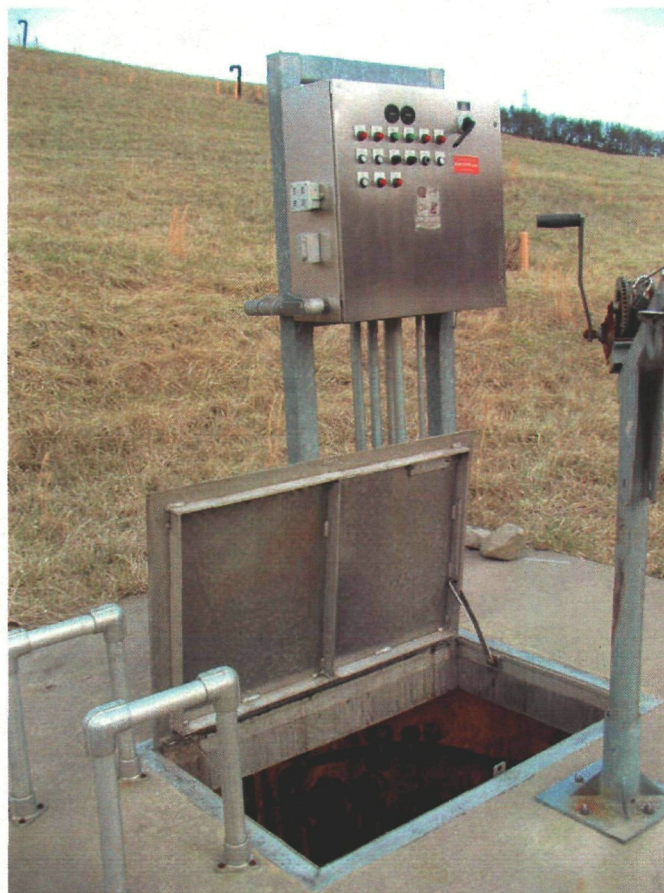


Photo 6- Leachate Collection Lift Station



Photo 7- Typical Monitoring Well Installation



Photo 8- Letdown Channel at OU2



Photo 9- OU2: Marker for elevation monument (foreground), and gas vents (back)



Photo 10- OU2 Surface Drainage Feature



Photo 11- OU2 Surface Drainage Feature



Photo 12- OU2 Typical Extraction Well, and Gas Vent



Photo 13- View to north across top of OU2: Improved vegetation is evident



Photo 14- OU2 Typical Extraction Well, and Gas Vent: Some erosion and rodent burrowing evident at base



Photo 15- View Across Peak of OU2: Start of letdown channel, mid-photo. Looking south



Photo 16- OU2 Typical Letdown Channel, looking east



Photo 17- View down at two monitoring locations from top of OU2: looking east



Photo 18- Base of OU1, looking northwest



Photo 19- OU1 Collection Pump Station



Photo 20- OU1 Slope Near Retaining Wall



Photo 21- OU1 Retaining Wall



Photo 22- OU1: view down from top of retaining wall



Photo 23- View Across OU1: Retaining wall to left of photographer, looking south.



Photo 24- View Across OU1: Retaining wall to left of photographer, looking south.



Photo 25- Small Area of Stressed Vegetation at OU1



Photo 26- OU1 Western Boundary, looking south.



Photo 27- Sandbags protecting drain from debris at southernmost corner of OU1.



Photo 28- Collected Leachate from Extraction Wells 1, 2, and 4

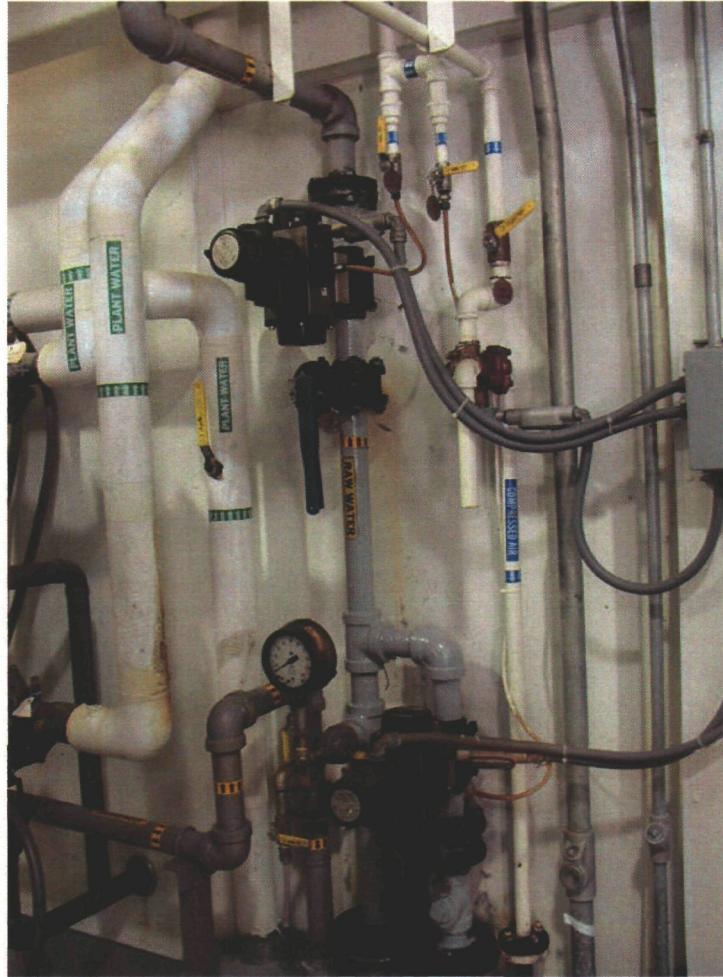


Photo 29- Leachate Treatment Plant-Influent Metering Point



Photo 30- Package Sequencing Batch Reactor (SBR)

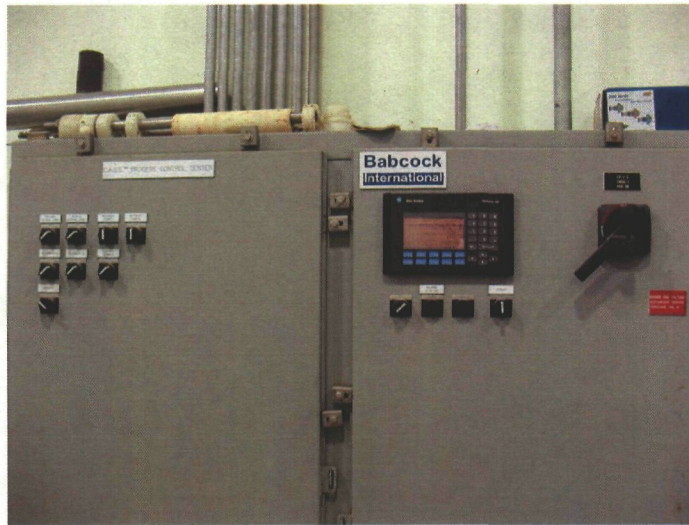


Photo 31- Package Sequencing Batch Reactor (SBR) Control



Photo 32- Sludge Thickening Tank (T-8-1)



Photo 33- Package Metals Removal Unit (MRU)



Photo 34- Package Low Profile Air Stripper (R-4-1)



Photo 35- Granular Activated Carbon Vessel- Polishing



Photo 36- Package Filter Press- Sludge Dewatering



Photo 37- Effluent Discharge Point



Photo 38- Bike Trails on Smith Farm Property, Trespassing.



Photo 39- Bike Trails on Smith Farm Property, Trespassing.



Photo 40- Sign Vandalism



Photo 41- Sign Vandalism

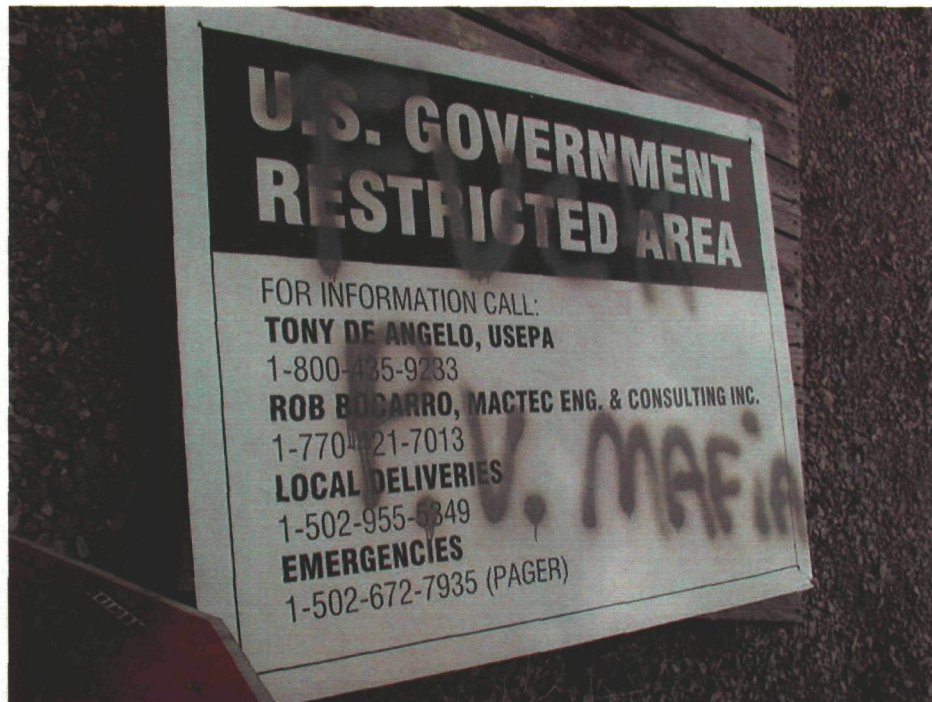


Photo 42- Sign Vandalism



Photo 43- Onsite waste pile.



Photo 44- Stream adjacent to right side of entry drive, and property on other side of stream, outside of entry gate



Photo 45- Stream adjacent to right side of entry drive, and property on other side of stream, inside of entry gate



Photo 46- Proximity of adjacent property (left) to entry gate (right).
Photographer is inside gate.



Photo 47- View of adjacent property, from inside gate.

Appendix A

5-Year Review EPA Public Notice



**EPA
Announces a Five-Year Review
For the
Smith's Farm Superfund Site**

The U.S. Environmental Protection Agency (EPA), is currently conducting a Five-Year Review of the Smith's Farm Superfund Site located on Pryor Valley Road in Brooks, Kentucky. The purpose of a Five-Year Review is to evaluate the implementation and performance of the selected cleanup remedy in order to determine if the remedy is, or will be, protective of human health and the environment.

The site was placed on the National Priorities List (NPL) in June 1986 and includes two operable units (OUs). OU 1 includes soil, sediment and groundwater contamination, as well as drums containing hazardous materials, associated with an unpermitted drum disposal area. A remedy for OU 1 was selected through a Record of Decision (ROD) signed in September 1989 and amended in 1991. OU 2 includes landfill wastes, leachate, leachate sediment, surface soil, groundwater and surface water contamination associated with the 37.5-acre landfill. A remedy for OU 2 was selected through a ROD signed in September 1993.

The Superfund law requires the U.S. EPA to evaluate the effectiveness of the selected remedy every five years until the site contaminant concentrations are at levels which allow for unlimited use of the property. This is the second Five-Year Review of the Smith's Farm Site.

It is anticipated that the Five-Year Review Report will be completed by September 2006. Upon completion, a copy of the final report will be placed in the local information repository located at the Ridgeway Memorial Library, located at 2nd and Walnut Street in Shepherdsville, Kentucky 40165. A copy will also be placed on EPA's website, <http://www.epa.gov/superfund/sites/fiveyear/index.htm>

If you have concerns or suggestions regarding the Smith's Farm Five-Year Review, please contact either Clark Rushing, Remedial Project Manager, U.S. EPA, Region 4, 61 Forsyth St. SW, Atlanta, GA 30303-8960, (404) 562-8821, Rushing.Clark@epa.gov or Eddie L. Wright, Community Involvement/EJ Coordinator, U.S. EPA, Region 4, 61 Forsyth St. SW, Atlanta, GA 30303-8960, (404) 562-8669, wright.eddie@epa.gov.

Appendix B

5-Year Review Participants

5-Year Review Participants

Name/Title	Organization	Address	Phone	Fax	E-mail
Richard Kennard, Env. Geologist	USACE Louisville	P.O. Box 59 Louisville, KY 40201-0059	502-315-6323	502-315-6309	Richard.A.Kennard@LRL02.usace.army.mil
Kari L. Meier, Env. Chemist	USACE Louisville	P.O. Box 59 Louisville, KY 40201-0059	502-315-6316	502-315-6309	Kari.L.Meier@LRL02.usace.army.mil
Susan Mallette, Env. Tech	KDEP, Div. of Waste Management	14 Reilly Road, Frankfort, KY 40601-1190	502-564-6716	502-564-5096	Susan.Mallette@KY.gov
Robert Pugh, Env. Tech	KDEP, Div. of Waste Management	14 Reilly Road, Frankfort, KY 40601-1190	502-564-6716	502-564-5096	Robert.Pugh@KY.gov
Kelli Reynolds, Env. Tech	KDEP, Div. of Waste Management	14 Reilly Road, Frankfort, KY 40601-1190	502-564-6716	502-564-5096	Kelli.Reynolds@KY.gov
Davis Miller, Principal Env. Engineer	Ford Motor Company	Parklane Towers West, Suite 950, Three Parklane Blvd, Dearborn, MI 48126	313-322-3761	313-248-5030	DMiller2@Ford.com
Eddie Taylor, Sr. Env. Tech.	MACTEC Engineering and Consulting, Inc.	13425 Eastpoint Centre Dr. Suite 122, Louisville, KY 40223	502-955-5349	502-253-2501	ETaylor@MACTEC.com
Jeffery Engels, Sr. Env. Tech., Principal	MACTEC Engineering and Consulting, Inc.	3200 Town Point Drive, NW, Suite 100 Kennesaw, GA 30144	770-421-3353	770-421-3486	JDEngles@MACTEC.com
Clark Rushing Remedial Project Mgr.	U.S. EPA, Region 4	61 Forsyth St. S.W. Atlanta, GA 30303	404-562-8821	404-562-8788	Rushing.Clark@EPA.gov

Appendix C

5-year Review Site Inspection Checklists

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

13-7

3. **Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.)** Fill in all that apply.

Agency _____					
Contact _____					
Name _____		Title _____	Date _____		Phone no. _____
Problems; suggestions; Report attached _____					

Agency _____
Contact _____

Name	Title	Date	Phone no.
Problems; suggestions; Report attached			

Agency _____					
Contact _____					
Name _____		Title _____	Date _____	Phone no. _____	
Problems; suggestions; Report attached _____					

Agency _____		_____		_____		_____	
Contact _____		_____		_____		_____	
Name _____		Title _____		Date _____		Phone no. _____	
Problems; suggestions; Report attached _____		_____		_____		_____	

4. **Other interviews (optional)** Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents O&M manual As-built drawings Maintenance logs Remarks _____	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks _____	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
3.	O&M and OSHA Training Records Remarks _____	Readily available	Up to date	N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits Remarks _____	Readily available Readily available Readily available Readily available	Up to date Up to date Up to date Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5.	Gas Generation Records Remarks _____	Readily available	Up to date	<input checked="" type="checkbox"/> N/A
6.	Settlement Monument Records Remarks _____	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	N/A
7.	Groundwater Monitoring Records Remarks _____	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	N/A
8.	Leachate Extraction Records Remarks _____	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks _____	Readily available <input checked="" type="checkbox"/> Readily available	Up to date <input checked="" type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
10.	Daily Access/Security Logs Remarks _____	Readily available	Up to date	<input checked="" type="checkbox"/> N/A

IV. O&M COSTS																																							
1.	O&M Organization State in-house _____ PRP in-house _____ Federal Facility in-house _____ Other _____	Contractor for State _____ X Contractor for PRP _____ Contractor for Federal Facility _____																																					
2.	O&M Cost Records Ready available _____ Up to date _____ Funding mechanism/agreement in place _____ Original O&M cost estimate _____ Breakdown attached _____ Total annual cost by year for review period if available <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">From _____</td> <td style="width: 15%;">To _____</td> <td style="width: 15%;">Date _____</td> <td style="width: 15%;">Date _____</td> <td style="width: 15%;">Total cost _____</td> <td style="width: 20%;">Breakdown attached _____</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>Total cost _____</td> <td>Breakdown attached _____</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>Total cost _____</td> <td>Breakdown attached _____</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>Total cost _____</td> <td>Breakdown attached _____</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>Total cost _____</td> <td>Breakdown attached _____</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>Total cost _____</td> <td>Breakdown attached _____</td> </tr> </table>			From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____	From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____	From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____	From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____	From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____	From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
From _____	To _____	Date _____	Date _____	Total cost _____	Breakdown attached _____																																		
3.	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: <u>R & R Lift Station Pump</u> _____ _____ _____ _____																																						
V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A																																							
A. Fencing																																							
1.	Fencing damaged _____ Remarks _____	X Location shown on site map _____ X Gates secured _____	N/A																																				
B. Other Access Restrictions																																							
1.	Signs and other security measures _____ Remarks _____																																						
	Location shown on site map _____ X N/A																																						

C. Institutional Controls (ICs)				
1.	Implementation and enforcement			
	Site conditions imply ICs not properly implemented	Yes	<input checked="" type="checkbox"/> No	N/A
	Site conditions imply ICs not being fully enforced	Yes	<input checked="" type="checkbox"/> No	N/A
	Type of monitoring (e.g., self-reporting, drive by)	self		
	Frequency	quarterly		
	Responsible party/agency	MACTEC		
	Contact	Jeff Engels, MACTEC PM		
	Name	Title	Date	Phone no.
	Reporting is up-to-date	<input checked="" type="checkbox"/> Yes	No	N/A
	Reports are verified by the lead agency	<input checked="" type="checkbox"/> Yes	No	N/A
	Specific requirements in deed or decision documents have been met	<input checked="" type="checkbox"/> Yes	No	N/A
	Violations have been reported	Yes	No	N/A
	Other problems or suggestions:	Report attached		
	Interviews with local residents indicate current controls may not be enough to keep trespassers out.			
2.	Adequacy	ICs are adequate	ICs are inadequate	N/A
	Remarks	Controls such as signs and gates are repaired or replaced often, only to be vandalized or stolen again.		
D. General				
1.	Vandalism/trespassing	Location shown on site map	No vandalism evident	
	Remarks	Ongoing issue, Vandalism evident, Signs replaced are removed (stolen or shot) within days/weeks of replacement; gates repaired often		
2.	Land use changes on site	<input checked="" type="checkbox"/> N/A		
	Remarks			
3.	Land use changes off site	<input checked="" type="checkbox"/> N/A		
	Remarks			
VI. GENERAL SITE CONDITIONS				
A. Roads		Applicable	N/A	
1.	Roads damaged	Location shown on site map	<input checked="" type="checkbox"/> Roads adequate	N/A
	Remarks			

B. Other Site Conditions			
Remarks _____			

VII. LANDFILL COVERS Applicable N/A			
A. Landfill Surface			
1.	Settlement (Low spots) Areal extent <u>30' x 40'</u> Remarks <u>grid spacing</u>	Location shown on site map Depth <u>-2"</u>	Settlement not evident
2.	Cracks Lengths _____ Remarks _____	Widths _____ Depths _____	<input checked="" type="checkbox"/> Cracking not evident
3.	Erosion Areal extent _____ Remarks <u>Some small erosion evident, but are being addressed adequately as they occur.</u>	Location shown on site map Depth _____	Erosion not evident
4.	Holes Areal extent _____ Remarks _____	Location shown on site map Depth _____	<input checked="" type="checkbox"/> Holes not evident
5.	Vegetative Cover Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	Grass <input checked="" type="checkbox"/> Cover properly established	No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) Remarks _____	<input checked="" type="checkbox"/> N/A	
7.	Bulges Areal extent _____ Remarks _____	Location shown on site map Height _____	<input checked="" type="checkbox"/> Bulges not evident

8.	Wet Areas/Water Damage	X	Wet areas/water damage not evident
	Wet areas		Location shown on site map Areal extent: _____
	Ponding		Location shown on site map Areal extent: _____
	Sceps		Location shown on site map Areal extent: _____
	Soft subgrade		Location shown on site map Areal extent: _____
	Remarks	_____	
9.	Slope Instability	Slides	Location shown on site map X No evidence of slope instability
	Areal extent	_____	
	Remarks	_____	
B.	Benches	Applicable	X N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	Flows Bypass Bench	Location shown on site map	X N/A or okay
	Remarks	_____	
2.	Bench Breached	Location shown on site map	X N/A or okay
	Remarks	_____	
3.	Bench Overtopped	Location shown on site map	X N/A or okay
	Remarks	_____	
C.	Letdown Channels	X Applicable	N/A
	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	Settlement	Location shown on site map	X No evidence of settlement
	Areal extent	Depth	_____
	Remarks	_____	
2.	Material Degradation	Location shown on site map	X No evidence of degradation
	Material type	Areal extent	_____
	Remarks	_____	
3.	Erosion	Location shown on site map	No evidence of erosion
	Areal extent	Depth	_____
	Remarks	_____	

4.	Undercutting	Location shown on site map	No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
5.	Obstructions	Type _____	X No obstructions
	Location shown on site map	Areal extent _____	
	Size _____		
	Remarks _____		
6.	Excessive Vegetative Growth	Type _____	
	X No evidence of excessive growth		
	Vegetation in channels does not obstruct flow		
	Location shown on site map	Areal extent _____	
	Remarks _____		
D. Cover Penetrations Applicable N/A			
1.	Gas Vents	X Active	Passive
	Properly secured/locked	X Functioning	Routinely sampled
	Evidence of leakage at penetration		X Good condition
	X N/A		Needs Maintenance
	Remarks _____		
2.	Gas Monitoring Probes		
	Properly secured/locked	Functioning	Routinely sampled
	Evidence of leakage at penetration		X Good condition
		Needs Maintenance	N/A
	Remarks _____		
3.	Monitoring Wells (within surface area of landfill)		
	Properly secured/locked	X Functioning	X Routinely sampled
	Evidence of leakage at penetration		X Good condition
		Needs Maintenance	X N/A
	Remarks _____		
4.	Leachate Extraction Wells		
	Properly secured/locked	X Functioning	Routinely sampled
	Evidence of leakage at penetration		X Good condition
		Needs Maintenance	X N/A
	Remarks _____		
5.	Settlement Monuments	X Located	X Routinely surveyed
			N/A
	Remarks _____		

E. Gas Collection and Treatment		Applicable	X N/A
1.	Gas Treatment Facilities Flaring Good condition Remarks _____	Thermal destruction Needs Maintenance	Collection for reuse
2.	Gas Collection Wells, Manifolds and Piping Good condition Remarks _____	Needs Maintenance	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____	Needs Maintenance	N/A
F. Cover Drainage Layer		X Applicable	N/A
1.	Outlet Pipes Inspected Remarks _____	X Functioning	N/A
2.	Outlet Rock Inspected Remarks _____	X Functioning	N/A
G. Detention/Sedimentation Ponds		Applicable	X N/A
1.	Siltation Areal extent _____ Depth _____ Siltation not evident Remarks _____		N/A
2.	Erosion Areal extent _____ Depth _____ Erosion not evident Remarks _____		
3.	Outlet Works Remarks _____	Functioning	N/A
4.	Dam Remarks _____	Functioning	N/A

H. Retaining Walls		Applicable	N/A
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	Location shown on site map _____ Vertical displacement _____	X Deformation not evident X Degradation not evident
2.	Degradation Remarks _____	Location shown on site map _____	X Degradation not evident
I. Perimeter Ditches/Off-Site Discharge		X Applicable	N/A
1.	Siltation Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	X Siltation not evident
2.	Vegetative Growth Vegetation does not impede flow Areal extent _____ Remarks _____	Location shown on site map _____ Type _____	X N/A
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	X Erosion not evident
4.	Discharge Structure Remarks _____	X Functioning	N/A
VIII. VERTICAL BARRIER WALLS		Applicable	N/A
1.	Settlement Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	X Settlement not evident
2.	Performance Monitoring Type of monitoring _____ Performance not monitored Frequency _____ Head differential _____ Remarks _____	NA Evidence of breaching	

IX. GROUNDWATER/SURFACE WATER REMEDIES					<input checked="" type="checkbox"/> Applicable	N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines					<input checked="" type="checkbox"/> Applicable	N/A
1.	Pumps, Wellhead Plumbing, and Electrical					
	<input checked="" type="checkbox"/> Good condition	<input checked="" type="checkbox"/> All required wells properly operating	Needs Maintenance	N/A		
Remarks _____						

2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances					
	<input checked="" type="checkbox"/> Good condition	Needs Maintenance				
Remarks _____						

3.	Spare Parts and Equipment					
	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Good condition	Requires upgrade	Needs to be provided		
Remarks _____						

B. Surface Water Collection Structures, Pumps, and Pipelines					Applicable	<input checked="" type="checkbox"/> N/A
1.	Collection Structures, Pumps, and Electrical					
	Good condition	Needs Maintenance				
Remarks _____						

2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances					
	Good condition	Needs Maintenance				
Remarks _____						

3.	Spare Parts and Equipment					
	Readily available	Good condition	Requires upgrade	Needs to be provided		
Remarks _____						

C. Treatment System		<input checked="" type="checkbox"/> Applicable	N/A
1.	Treatment Train (Check components that apply) <input checked="" type="checkbox"/> Metals removal Oil/water separation <input checked="" type="checkbox"/> Bioremediation <input checked="" type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Carbon adsorbers Filters Bag Filter Additive (e.g., chelation agent, flocculent) EAP 7040 Others <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> Sampling ports properly marked and functional <input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date <input checked="" type="checkbox"/> Equipment properly identified Quantity of groundwater treated annually 909,947 gal Quantity of surface water treated annually NA Remarks		
2.	Electrical Enclosures and Panels (properly rated and functional) N/A <input checked="" type="checkbox"/> Good condition Needs Maintenance Remarks		
3.	Tanks, Vaults, Storage Vessels N/A <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> Proper secondary containment Needs Maintenance Remarks		
4.	Discharge Structure and Appurtenances N/A <input checked="" type="checkbox"/> Good condition Needs Maintenance Remarks		
5.	Treatment Building(s) N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) Needs repair Chemicals and equipment properly stored Remarks		
6.	Monitoring Wells (pump and treatment remedy) Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located Needs Maintenance N/A Remarks		
D. Monitoring Data			
1.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality		
2.	Monitoring data suggests: Groundwater plume is effectively contained Contaminant concentrations are declining		

D. Monitored Natural Attenuation

1. **Monitoring Wells (natural attenuation remedy)**
- | | | | |
|----------------------------|-------------------|-------------------|----------------|
| Properly secured/locked | Functioning | Routinely sampled | Good condition |
| All required wells located | Needs Maintenance | | X N/A |
- Remarks _____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

For both OU1 and @U2, the remedial action objectives are to reduce or prevent the risk associated with direct exposure of humans and fauna to

- Landfill waste and contaminated on-site surface soils;
- Contaminated, on-site surface waters and groundwaters;
- Contaminated, on-site stream sediments; and
- Contaminated on-site leachate and leachate sediments.

Functioning. maintained well. Monitoring activities for GW and Air not accomplished

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. See Document text, section X for protectiveness statement

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

No unexpected costs

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
groundwater monitoring, gas vent monitoring

Appendix D

Annual Report Tables for 2001-2005

2001 Annual Operation & Maintenance Report
Smith's Farm Operable Units One and Two
LAW Project 12000-1-0006

April 2002

TABLES

Table 1: Summary of Treated Leachate Volume - Operable Units One and Two

Month	Plant Discharge Totals	OU-2 Monitoring Wells Discharge Totals				OU-2 Interceptor Trench Estimated Discharge Totals	OU-1 Tanks Discharge Totals		Monthly Rainfall
		MW-1	MW-2	MW-3	MW-4		North Tank	South Tank	Inches
JAN	56169	6558	7113	295	1435	40768	0	0	1.51
FEB	109437	6010	6919	390	1715	94403	0	0	3.77
MAR *	120437	0	0	0	0	120437	0	0	2.46
APR	128250	7903	8248	0	1403	110696	0	0	1.09
MAY	128428	6358	6468	128	1634	113840	0	0	6.61
JUN	95670	3037	3883	97	99	88014	0	540	2.56
JUL	113672	4763	4951	75	701	102516	0	667	2.98
AUG	72426	3845	4300	410	547	63324	0	0	3.07
SEP	89977	5333	4876	99	131	79538	0	0	2.97
OCT	111335	5130	3257	75	694	100748	0	1431	6.46
NOV	97311	6703	3466	0	293	84580	0	2269	5.51
DEC	118033	7101	3816	100	0	89249	210	17557	4.53
TOTALS	1241145	62741	57297	1669	6652	1088112	210	22484	43.52

NOTES:

All discharge volumes in gallons.

No discharge totals were calculated on OU-1 north and south tanks the first six months because the pump was set on automatic discharge.

MW-4 flow meter was damaged due to chemicals in ground water and is inaccurate for the last six months of the year.

* Monitoring wells on OU-2 were shut off in the month of march due to the locating and repair of an air leak associated with a junction box.

Table 2: Treatment Plant Monthly Effluent Sampling Results

SAMPLE MONTH: DATE COLLECTED:		ROD Effluent Requirements	KPDES Effluent Requirements	January 2/2/01	March 4/25/01	June 6/25/01	September 10/12/01	December 12/14/01
VOLATILE ORGANIC COMPOUNDS BY SW8260								
PARAMETERS	UNITS							
Acetone	ug/L			31	<20	<20	<20	<20
Benzene	ug/L		5	<5	<5	<5	<5	<5
Bromodichloromethane	ug/L			<5	<5	<5	<5	<5
Bromoform	ug/L			<5	<5	<5	<5	<5
Bromomethane	ug/L			<5	<5	<5	<5	<5
2-Butanone	ug/L			12	<10	<10	<10	<10
Carbon Disulfide	ug/L			<5	<5	<5	<5	<5
Carbon Tetrachloride	ug/L			<5	<5	<5	<5	<5
Chlorobenzene	ug/L			<5	<5	<5	<5	<5
Chloroethane	ug/L			<5	<5	<5	<5	<5
Chloroform	ug/L			<5	<5	<5	<5	<5
Chloromethane	ug/L			<5	<5	<5	<5	<5
Dibromochloromethane	ug/L			<5	<5	<5	<5	<5
1,2-Dichlorobenzene	ug/L			NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/L			NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/L			NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/L		5	<5	<5	<5	<5	<5
1,1-Dichloroethane	ug/L		5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	ug/L			<5	<5	<5	<5	<5
Trans-1,2-Dichloroethene	ug/L			<5	<5	<5	<5	<5
total 1,2-Dichloroethene	ug/L			NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/L		5	<5	<5	<5	<5	<5
1,2-Dichloropropane	ug/L		5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	ug/L			<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	ug/L			<5	<5	<5	<5	<5
Ethyl benzene	ug/L		5	<5	<5	<5	<5	<5
2-Hexanone	ug/L			<10	<10	<10	<10	<10
4-Methyl-2-pentanone	ug/L			<10	<10	<10	<10	<10
Methylene chloride	ug/L	5870	5	<5	<5	<5	<5	<5
Styrene	ug/L			<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	ug/L			<5	<5	<5	<5	<5
Tetrachloroethene	ug/L			<5	<5	<5	<5	<5
Toluene	ug/L		5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	ug/L		5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	ug/L			<5	<5	<5	<5	<5
Trichloroethene	ug/L		5	<5	<5	<5	<5	<5
Vinyl Chloride	ug/L			<5	<5	<5	<5	<5
Xylenes total	ug/L			<5	<5	<5	<5	<5
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270								
Acenaphthene	ug/L			<10	<10	<9	<9	<10
Acenaphthylene	ug/L			<10	<10	<9	<9	<10
Anthracene	ug/L			<10	<10	<9	<9	<10
Benzaldehyde	ug/L			NA	NA	NA	NA	NA
Benzo (A) Anthracene	ug/L			<10	<10	<9	<9	<10
Benzo (A) Pyrene	ug/L			<10	<10	<9	<9	<10
Benzo (B) Fluoranthene	ug/L			<10	<10	<9	<9	<10
Benzo(g,h,i)perylene	ug/L			<10	NA	<9	<9	<10
Benzo(k)fluoranthene	ug/L			<10	<10	<9	<9	<10
4-Bromophenyl-phenylether	ug/L			<10	<10	<9	<9	<10
Butyl Benzyl Phthalate	ug/L		10	<10	<10	<9	<9	<10
Carbazole	ug/L			<10	NA	<9	<9	<10

Table 2: Treatment Plant Monthly Effluent Sampling Results continued...

SAMPLE MONTH:		ROD	KPDES	January	March	June	September	December
DATE COLLECTED:		Effluent Requirements	Effluent Requirements	2/2/01	4/25/01	6/25/01	10/12/01	12/14/01
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...								
4-Chloro 3-methylphenol	ug/L			<10	<10	<9	<9	<10
4-Chloroaniline	ug/L			<10	<10	<9	<9	<10
bis(2-Chloroethoxy)methane	ug/L			<10	<10	<9	<9	<10
bis(2-Chloroethyl) Ether	ug/L			<10	<10	<9	<9	<10
bis(2-Chloroisopropyl) ether	ug/L			NA	NA	NA	NA	NA
bis(2-Ethylhexyl) phthalate	ug/L			<10	<10	<9	<9	<10
2-Chloronaphthalene	ug/L			<10	<10	<9	<9	<10
2-Chlorophenol	ug/L	23		<10	<10	<9	<9	<10
4-Chlorophenyl-phenyl ether	ug/L			<10	<10	<9	<9	<10
Chrysene	ug/L			<10	<10	<9	<9	<10
Di-n-butyl phthalate	ug/L			<10	<10	<9	<9	<10
Di-n-octyl phthalate	ug/L			<10	<10	<9	<9	<10
Dibenz(a,h)anthracene	ug/L			<10	<10	<9	<9	<10
Dibenzofuran	ug/L			<10	<10	<9	<9	<10
1,4-Dichlorobenzene	ug/L		5	<10	<10	<9	<9	<10
1,3-Dichlorobenzene	ug/L			<10	<10	<9	<9	<10
1,2-Dichlorobenzene	ug/L		5	<10	<10	<9	<9	<10
3,3'-Dichlorobenzidine	ug/L			<10	<10	<9	<9	<10
2,4-Dichlorophenol	ug/L			<10	<10	<9	<9	<10
Diethyl Phthalate	ug/L			<10	<10	<9	<9	<10
Dimethyl Phthalate	ug/L			<10	<10	<9	<9	<10
2,4-Dimethylphenol	ug/L	4570	10	<10	<10	<9	<9	<10
4,6-Dinitro-2-methylphenol	ug/L			<24	<24	<24	<24	<24
2,4-Dinitrophenol	ug/L			<58	<57	<57	<57	<58
2,4-Dinitrotoluene	ug/L			<10	<10	<9	<9	<10
2,6-Dinitrotoluene	ug/L			<10	<10	<9	<9	<10
Di-n-octylphthalate	ug/L			<10	NA	NA	NA	NA
Fluoranthene	ug/L			<10	<10	<9	<9	<10
Fluorene	ug/L			<10	<10	<9	<9	<10
Hexachlorobenzene	ug/L			<10	<10	<9	<9	<10
Hexachlorobutadiene	ug/L			<10	<10	<9	<9	<10
Hexachlorocyclopentadiene	ug/L			<24	<24	<24	<24	<24
Hexachloroethane	ug/L			<10	<10	<9	<9	<10
Indeno(1,2,3-cd)pyrene	ug/L			<10	<10	<9	<9	<10
Isophorone	ug/L			<10	<10	<9	<9	<10
2-Methylnaphthalene	ug/L			<10	<10	<9	<9	<10
2-Methylphenol	ug/L			<10	<10	<9	<9	<10
4-Methylphenol	ug/L			<10	<10	<9	<9	<10
N-Nitroso-di-n-propylamine	ug/L	11		<10	<10	<9	<9	<10
N-Nitrosodiphenylamine	ug/L			<10	<10	<9	<9	<10
Naphthalene	ug/L			<10	<10	<9	<9	<10
4-Nitroaniline	ug/L			<10	<10	<9	<9	<10
3-Nitroaniline	ug/L			<10	<10	<9	<9	<10
2-Nitroaniline	ug/L			<10	<10	<9	<9	<10
Nitrobenzene	ug/L	250		<10	<10	<9	<9	<10
4-Nitrophenol	ug/L			<49	<48	<47	<47	<48
2-Nitrophenol	ug/L			<10	<10	<9	<9	<10
2,2-oxybis(1-Chloropropane)	ug/L			<10	<10	<9	<9	<10
Pentachlorophenol	ug/L			<24	<24	<24	<24	<24
Phenanthrene	ug/L			<10	<10	<9	<9	<10
Phenol	ug/L	365000	10	<10	<10	<9	<9	<10
Pyrene	ug/L			<10	<10	<9	<9	<10

Table 2: Treatment Plant Monthly Effluent Sampling Results continued...

SAMPLE MONTH:		ROD		KPDES		January	March	June	September	December
DATE COLLECTED:		Effluent Requirements		Effluent Requirements		2/2/01	4/25/01	6/25/01	10/12/01	12/14/01
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...										
1,2,4-Trichlorobenzene	ug/L					<10	<10	<9	<9	<10
2,4,5-Trichlorophenol	ug/L					<10	<10	<9	<9	<10
2,4,6-Trichlorophenol	ug/L					<10	<10	<9	<9	<10
METALS										
PARAMETERS	UNITS									
Antimony	mg/L	0.062		1.6		<0.20	<0.200	<0.200	<0.200	<0.200
Arsenic	mg/L	0.011		0.05		<0.010	NA	<0.0100	<0.0100	<0.0100
Barium	mg/L	0.231				<0.10	0.112	0.139	0.248	0.262
Beryllium	mg/L			0.0053		<0.010	<0.0100	<0.0100	<0.0100	<0.0100
Cadmium	mg/L			0.0011		<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Calcium	mg/L					41.8	66.1	80.4	123	114
Chromium	mg/L	0.011		0.011		<0.030	<0.0300	<0.0300	<0.0300	<0.0300
Copper	mg/L			0.012		<0.025	<0.0250	<0.0250	<0.0250	<0.0250
Iron	mg/L			1		0.191	0.311	0.310	0.161	0.193
Lead	mg/L			0.0032		0.02	<0.0200	<0.0200	<0.0200	<0.0200
Magnesium	mg/L					81.2	82.1	82.6	102	94.8
Manganese	mg/L					0.544	0.463	0.442	0.078	0.966
Mercury	mg/L			0.000012		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel	mg/L			0.16		<0.050	<0.0500	<0.0500	<0.0500	<0.0500
Selenium	mg/L			0.005		<0.010	<0.0100	<0.0100	<0.0100	<0.0100
Silver	mg/L			0.00012		<0.020	<0.0200	<0.0200	<0.0200	<0.0200
Thallium	mg/L	0.011		0.04		<0.020	<0.0200	<0.0200	<0.0200	<0.0200
Zinc	mg/L			0.11		<0.020	<0.0200	<0.0200	<0.0200	<0.0200
GENERAL INORGANICS										
PARAMETERS	UNITS									
BOD	mg/L					NA	8.9	7.4	9.2	5.2
COD	mg/L					107	86	97	117	107
Cyanide total	mg/L					<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrogen, Ammonia	mg/L					10.4	8.39	9.13	8.8	5.4
Nitrogen, Kjeldahl	mg/L					14.1	10.5	12.1	10.8	5.4
Nitrogen, Nitrate	mg/L					NA	NA	NA	NA	NA
Nitrogen, Nitrite	mg/L					NA	NA	NA	NA	NA
Nitrogen, Nitrite, and Nitrate	mg/L					<0.10	<0.10	<0.10	<0.10	<0.10
Organic Carbon total	mg/L					28.6	26.4	38	31.9	18.3
pH	s.u.					NA	7.66	7.5	7.77	7.8
Phosphate Ortho-	mg/L					NA	0.762	0.81	0.79	0.26
Phosphorus total	mg/L					0.959	0.92	0.705	1.07	0.522
TDS	mg/L					1500	1480	1440	1480	1350
TSS	mg/L					<12	<12	<12	<12	<12
Turbidity	NTU					NA	10.8	7.92	7.93	2.22

Notes:

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

Table 3: Summary of Settlement Monuments Elevations

April 2002

MONUMENT	2000 ELEV	2001 ELEV	CHANGE
SM-01	613.79	613.62	0.17
SM-02	619.41	619.25	0.16
SM-03	624.83	624.67	0.16
SM-04	625.47	625.33	0.14
SM-05	630.77	630.62	0.15
SM-06	634.15	634.00	0.15
SM-07	N/A	644.57	N/A
SM-08	N/A	639.44	N/A
SM-09	637.03	636.88	0.15
SM-10	634.37	634.18	0.19
SM-11	628.58	628.43	0.15
SM-12	614.24	614.10	0.14
SM-13	599.68	599.52	0.16
SM-14	616.89	616.74	0.15
SM-15	631.17	631.01	0.16
SM-16	638.51	638.36	0.15
SM-17	644.65	644.51	0.14
SM-18	652.47	652.37	0.10
SM-19	659.75	659.63	0.12
SM-20	668.84	668.75	0.09
SM-21	664.20	664.07	0.13
SM-22	652.24	652.10	0.14
SM-23	628.97	628.81	0.16
SM-24	641.04	640.88	0.16
SM-25	616.48	616.33	0.15
SM-26	601.34	601.21	0.13
SM-27	601.34	601.21	0.13
SM-28	612.75	612.60	0.15
SM-29	626.99	626.85	0.13
SM-30	644.81	644.65	0.16
SM-31	661.68	661.53	0.15
SM-32	674.40	674.29	0.11
SM-33	673.32	673.22	0.10
SM-34	652.33	652.16	0.17
SM-35	633.78	633.61	0.17
SM-36	612.24	612.10	0.14
SM-37	600.02	599.86	0.16
SM-38	620.03	619.86	0.17
SM-39	641.52	641.33	0.19
SM-40	664.02	663.88	0.14
SM-41	675.33	675.19	0.14
SM-42	687.57	687.44	0.13
SM-43	662.51	662.32	0.19
SM-44	660.32	660.13	0.19
SM-45	650.73	650.58	0.15

MONUMENT	2000 ELEV	2001 ELEV	CHANGE
MON-A	559.99	559.94	0.05
MON-B	538.75	538.75	0.00
MON-C	526.04	526.04	0.00
N-D STAMPED 728	728.42	728.37	0.05
MON-E	305.03	305.02	0.01
MON-F	314.26	314.26	0.00
TRV DISK #37	331.26	331.14	0.12
TRV DISK#3	N/A	624.33	N/A

MONUMENT	2000 ELEV	2001 ELEV	CHANGE	MONUMENT	2000 ELEV	2001 ELEV	CHANGE	MONUMENT	2000 ELEV	2001 ELEV	CHANGE
16001	715.96	715.83	0.13	16051	624.01	623.99	0.02	16101	637.06	636.90	0.16
16002	713.01	712.91	0.10	16052	630.26	630.17	0.09	16102	640.10	639.95	0.15
16003	702.87	702.79	0.08	16053	632.53	632.43	0.10	16103	646.13	646.03	0.10
16004	704.72	704.66	0.06	16054	608.06	608.01	0.05	16104	630.39	630.29	0.10
16005	706.77	706.62	0.15	16055	617.34	617.26	0.08	16105	629.50	629.35	0.15
16006	704.34	704.22	0.12	16056	604.45	604.39	0.06	16106	627.85	627.61	0.24
16007	694.46	694.36	0.10	16057	615.30	615.23	0.07	16107	628.53	628.41	0.12
16008	693.36	693.27	0.09	16058	636.15	636.07	0.08	16108	630.69	630.55	0.14
16009	682.77	682.68	0.09	16059	567.71	567.67	0.04	16109	625.53	625.39	0.14
16010	685.9	685.76	0.14	16060	587.77	587.73	0.04	16110	624.96	624.86	0.10
16011	712.12	712.00	0.12	16061	609.45	609.41	0.04	16111	623.82	623.62	0.20
16012	700.91	700.81	0.10	16062	600.98	600.96	0.02	16112	625.46	625.29	0.17
16013	687.34	687.20	0.14	16063	582.20	MISSING	N/A	16113	625.96	625.86	0.10
16014	678.37	678.23	0.14	16064	647.17	647.12	0.05	16114	623.44	623.35	0.09
16015	678.12	678.03	0.09	16065	647.09	646.94	0.15	16115	622.80	622.72	0.08
16016	675.06	674.98	0.08	16066	642.09	642.03	0.06	16116	621.70	621.51	0.19
16017	669.75	669.69	0.06	16067	618.04	618.04	0.00	16117	621.55	621.38	0.17
16018	663.83	663.78	0.05	16068	617.05	616.97	0.08	16118	622.43	622.35	0.08
16019	663.88	663.80	0.08	16069	606.41	606.38	0.03	16119	618.50	618.35	0.15
16020	675.06	674.92	0.14	16070	578.40	578.34	0.06	16120	615.77	615.70	0.07
16021	679.07	679.06	0.01	16071	583.55	583.44	0.11	16121	612.31	612.25	0.06
16022	675.12	675.04	0.08	16072	601.63	601.55	0.08	16122	612.49	612.46	0.03
16023	667.41	667.27	0.14	16073	581.27	581.19	0.08	16123	611.99	611.99	0.00
16024	664.36	664.27	0.09	16074	568.88	568.86	0.02	16124	607.70	607.69	0.01
16025	659.9	659.78	0.12	16075	566.47	566.45	0.02	16125	602.13	602.12	0.01
16026	657.44	657.33	0.11	16076	599.15	599.04	0.11	16126	593.94	593.92	0.02
16027	657.27	657.22	0.05	16077	599.31	599.27	0.04	16127	596.05	596.05	0.00
16028	684.26	684.19	0.07	16078	610.76	610.70	0.06	16128	586.13	586.16	-0.03
16029	683.8	683.75	0.05	16079	616.06	615.99	0.07	16129	545.51	545.50	0.01
16030	658.29	658.23	0.06	16080	619.42	619.36	0.07	16130	580.19	580.13	0.06
16031	657.31	657.28	0.03	16081	613.41	613.36	0.05	16131	593.34	593.32	0.02
16032	661.61	661.58	0.03	16082	616.44	616.40	0.04	16132	598.20	598.17	0.03
16033	656.11	656.05	0.06	16083	622.88	622.79	0.09	16133	606.62	606.60	0.02
16034	649.98	649.87	0.11	16084	628.84	628.75	0.09	16134	602.73	602.68	0.05
16035	653.19	653.07	0.12	16085	621.62	621.51	0.11	16135	584.43	584.43	0.00
16036	652.47	652.38	0.09	16086	631.48	631.36	0.12	16136	593.94	593.85	0.09
16037	651.72	651.63	0.09	16087	639.85	639.63	0.22	16137	594.82	594.85	-0.03
16038	653.4	653.27	0.13	16088	551.94	551.91	0.03	16138	610.61	610.60	0.01
16039	658.26	658.14	0.12	16089	550.53	550.50	0.03	16139	610.26	610.20	0.06
16040	652.76	652.68	0.08	16090	554.82	554.83	-0.01	16140	617.45	617.39	0.06
16041	649.28	649.14	0.12	16091	555.85	555.85	0.00	16141	619.00	618.94	0.06
16042	664.15	664.04	0.11	16092	559.78	559.80	-0.02	16142	621.13	621.04	0.09
16043	662.28	662.29	-0.01	16093	578.98	579.00	-0.02	16143	620.13	620.04	0.09
16044	655.37	655.28	0.09	16094	586.30	586.28	0.02	16144	618.12	618.88	0.24
16045	648.64	648.52	0.12	16095	546.51	546.47	0.04	16145	618.29	618.16	0.13
16046	644.47	644.39	0.08	16096	645.90	645.77	0.13	16146	615.07	614.94	0.13
16047	640.15	640.05	0.10	16097	646.81	646.71	0.10	16147	608.39	609.32	0.07
16048	640.01	639.87	0.04	16098	648.47	648.36	0.11	16148	615.97	615.88	0.09
16049	642.26	642.25	0.01	16099	639.88	639.77	0.11	16149	617.96	617.86	0.10
16050	646.48	646.48	0.00	16100	637.62	637.46	0.16	16150	616.41	616.37	0.04

Table 4: Groundwater Monitoring Well Sampling Results

DATE COLLECTED: SAMPLE ID:		OP UNIT ONE - DECEMBER 9, 2001											IP UNIT TWO JUNE 27, 2001							OP UNIT TWO DECEMBER 12, 2001						
		MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-11	MW-12	MW-13	MW-14	MW-15	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1
VOLATILE ORGANIC COMPOUNDS																										
PARAMETERS																										
UNITS																										
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND	3	ND	
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethene (total)	ug/L	ND	ND	ND	ND	ND	ND	510	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	ug/L	ND	ND	ND	ND	ND	ND	530	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SEMI-VOLATILE ORGANIC COMPOUNDS																										
PARAMETERS																										
UNITS																										
Caproaldehyde	ug/L	ND	ND	ND	ND	340	390	330	1100	360	1500	230	3	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
METALS																										
PARAMETERS																										
UNITS																										
Aluminum	ug/L	406	ND	799	46700	58.9	176	2830	899	276	ND	41.8	15200	30700	4370	19800	2010	471	227	30600	29500	ND	1060	9320	380	124
Antimony	ug/L	5.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.7	ND	ND	ND	ND	ND	ND
Arsenic	ug/L	ND	ND	ND	15.7	ND	ND	ND	ND	4.9	ND	ND	9.4	20.7	ND	7	ND	ND	ND	27.7	21.3	ND	ND	6.1	ND	ND
Barium	ug/L	27	9	33.4	395	32.8	14.7	10.8	21.8	28.4	20.5	30.9	503	110	36.7	89.5	29.2	2.3	19.5	1670	114	ND	47.4	75.3	13.3	0.2
Beryllium	ug/L	ND	ND	ND	2.2	ND	ND	0.25	ND	ND	ND	ND	0.51	1.9	0.45	1.6	0.37	0.3	0.33	1.6	1.3	ND	ND	0.67	0.27	4.17
Cadmium	ug/L	0.74	ND	ND	ND	ND	ND	ND	ND	170	ND	ND	ND	1.0	ND	27.8	0.43	1.45	ND	ND	0.58	ND	30.2	ND	ND	ND
Calcium	ug/L	17700	56400	91000	33100	107000	69800	55600	16100	34600	56100	12400	169000	491000	114000	87800	359000	417000	17100	154000	465000	ND	78900	285000	487000	19600
Chromium	ug/L	699	1.4	56.7	87.7	ND	7.3	5.2	3.8	32.8	1.7	41.8	32.7	46.4	16.6	39.9	11.5	ND	2	80.7	44.3	ND	5.3	25.4	ND	ND
Cobalt	ug/L	4	ND	ND	31.3	2.1	ND	4.5	ND	10.8	ND	2.7	25.4	103	5.4	31.4	7.1	ND	17.3	43.5	71.5	ND	ND	16	ND	7.2
Copper	ug/L	20	ND	6.3	128	1.4	3.7	8.6	3.6	37.9	1.9	0.98	54.1	91	19.2	85.4	15.1	ND	ND	89.8	51.8	ND	7.7	33.8	5.5	1.5
Iron	ug/L	2999	102	2190	84000	333	162	7940	1570	8100	337	328	71000	55600	8250	40300	4470	196	434	129000	63200	ND	2160	2450	876	104
Lead	ug/L	ND	ND	ND	60.4	ND	ND	3.5	2.4	8.1	ND	ND	13.1	27.2	ND	23.3	ND	ND	ND	24	13.4	ND	ND	ND	ND	ND
Magnesium	ug/L	12900	58100	77200	27100	67700	43800	61500	18500	19300	30300	27000	132000	721000	473000	105000	438000	731000	46500	126000	701000	ND	89100	352000	762000	42600
Manganese	ug/L	92.1	51.9	48.2	2020	2370	15.1	166	79.8	47	32.9	255	3584	9330	90.4	2180	582	ND	1180	3710	9140	ND	51.3	760	ND	737
Mercury	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.038	0.063	ND	ND	ND	ND	ND
Nickel	ug/L	618	8.3	64.2	109	35.1	12.3	15.6	8.1	71.6	36.3	52.3	84	792	43.4	145	24.4	5.1	53.2	150	816	ND	82.4	46.8	9.9	40.5
Potassium	ug/L	3339	7730	9620	16000	8940	1180	7630	2980	3810	5630	2330	22400	39300	9270	10500	12300	11700	1680	25500	39100	ND	7120	14104	22200	2630
Selenium	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.9	4.9	ND	ND	ND	ND	ND
Silver	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	ug/L	23500	93000	171000	18000	65300	54700	77500	20300	27100	53300	110000	112000	492000	402000	69300	413000	407000	52700	121000	481000	ND	58400	319000	435000	82200
Thallium	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	ug/L	5.4	ND	2.3	89.2	1.1	1.2	5.8	2.2	22	ND	ND	28.1	56.6	8.3	36.1	4.4	2.4	ND	59.7	52.8	ND	2.9	18	0.9	ND
Zinc	ug/L	28.7	60.3	89.2	426	42.5	58.1	54.3	103	357	47.8	66.3	220	375	132	12200	70	104	142	329	338	ND	18900	97.4	22.2	44.5
Cyanide	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
ND = Not detected above laboratory detection limits listed on laboratory data sheets
NA = Not analyzed
Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

TABLES

Table 1: Summary of Treated Leachate Volume - Operable Units One and Two

Month	Plant Discharge Totals	OU-2 Extraction Wells Discharge Totals				OU-2 Leachate Collection Trench	OU-1 Tanks Discharge Totals		Monthly Rainfall
		MW-1	MW-2	MW-3	MW-4	Estimated Discharge Totals	North Tank	South Tank	Inches
JAN	89744	4760	1579	40	856	76361	1981	4167	4.66
FEB	100850	5242	1216	60	1173	83182	0	9977	1.46
MAR	116259	4460	635	40	1766	98821	2373	8164	7.74
APR	128184	5857	587	38	1355	107599	1954	10794	6.31
MAY	140807	5678	327	20	1077	120527	1568	11610	6.86
JUN	62293	2891	257	12	8	55425	2887	813	3.71
JUL	99873	4872	312	23	597	89991	2776	1302	0.99
AUG	76676	4236	271	10	618	70493	0	1048	0.82
SEP	85502	4217	210	10	532	79477	0	1056	7.84
OCT	87680	2881	155	9	957	79329	0	4349	5.24
NOV	106829	3776	172	11	151	91200	4209	7310	2.55
DEC	104999	4103	204	12	0	85353	3256	12071	7.11
TOTALS	1199696	52973	5925	285	9090	1037758	21004	72661	55.29

NOTES:

All discharge volumes in gallons.

Volume of gallons per month dropped in MW-2 Extraction Well

Due to corrosive chemicals being present in MW-4 Extraction Well, caused reduced totalizer readings in some months


Prepared by: E Taylor
 Checked by: 

Table 2: Treatment Plant Quarterly Effluent Sampling Results 2002

SAMPLE MONTH: DATE COLLECTED:	ROD Effluent Requirements	KPDES Effluent Requirements	April 4/1/2002	JUNE 6/12/2002	SEPT 9/13/2002	DEC 12/11/2002
VOLATILE ORGANIC COMPOUNDS BY SW8260						
PARAMETERS	UNITS					
Acetone	ug/L		<50	<50	<50	<50
Benzene	ug/L	5	<5	<5	<5	<5
Bromodichloromethane	ug/L		<5	<5	<5	<5
Bromoform	ug/L		<5	<5	<5	<5
Bromomethane	ug/L		<10	<10	<10	<10
2-Butanone	ug/L		<50	<50	<50	<50
Carbon Disulfide	ug/L		<10	<10	<10	<10
Carbon Tetrachloride	ug/L		<5	<5	<5	<5
Chlorobenzene	ug/L		<5	<5	<5	<5
Chloroethane	ug/L		<10	<10	<10	<10
Chloroform	ug/L		<5	<5	<5	<5
Chloromethane	ug/L		<10	<10	<10	<10
Dibromochloromethane	ug/L		<5	<5	<5	<5
1,2-Dichlorobenzene	ug/L		NA	NA	NA	NA
1,4-Dichlorobenzene	ug/L		NA	NA	NA	NA
1,3-Dichlorobenzene	ug/L		NA	NA	NA	NA
1,2-Dichloroethane	ug/L	5	<5	<5	<5	<5
1,1-Dichloroethane	ug/L	5	<5	<5	<5	<5
cis-1,2-Dichloroethene	ug/L		<5	<5	<5	<5
Trans-1,2-Dichloroethene	ug/L		<5	<5	<5	<5
total 1,2-Dichloroethene	ug/L		NA	NA	NA	NA
1,1-Dichloroethene	ug/L	5	<5	<5	<5	<5
1,2-Dichloropropane	ug/L	5	<5	<5	<5	<5
trans-1,3-Dichloropropene	ug/L		<5	<5	<5	<5
cis-1,3-Dichloropropene	ug/L		<5	<5	<5	<5
Ethyl benzene	ug/L	5	<5	<5	<5	<5
2-Hexanone	ug/L		<10	<10	<10	<10
4-Methyl-2-pentanone	ug/L		<50	<50	<50	<50
Methylene chloride	ug/L	5870	<10	<10	<10	<10
Styrene	ug/L		<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	ug/L		<5	<5	<5	<5
Tetrachloroethene	ug/L	5	<5	<5	<5	<5
Toluene	ug/L	5	<5	<5	<5	<5
1,1,2-Trichloroethane	ug/L	5	<5	<5	<5	<5
1,1,1-Trichloromethane	ug/L		<5	<5	<5	<5
Trichloroethene	ug/L	5	<5	<5	<5	<5
Vinyl Chloride	ug/L		<5	<5	<5	<5
Xylenes total	ug/L		<5	<5	<5	<5
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270						
Acenaphthene	ug/L		<10	<10	<10	<10
Acenaphthylene	ug/L		<10	<10	<10	<10
Anthracene	ug/L		<10	<10	<10	<10
Benzaldehyde	ug/L		NA	NA	NA	<10
Benzo (A) Anthracene	ug/L		<10	<10	<10	<10
Benzo (A) Pyrene	ug/L		<10	<10	<10	<10
Benzo (B) Fluoranthene	ug/L		<10	<10	<10	<10
Benzo(g,h,i)perylene	ug/L		<10	NA	<10	<10
Benzo(k)fluoranthene	ug/L		<10	<10	<10	<10
4-Bromophenyl-phenylether	ug/L		<10	<10	<10	<10
Butyl Benzyl Phthalate	ug/L	10	<10	<10	<10	<10
Carbazole	ug/L		<10	<10	<10	<10
4-Chloro-3-methylphenol	ug/L		<10	<10	<10	<10
4-Chloroaniline	ug/L		<10	<10	<10	<10
bis(2-Chloroethoxy)methane	ug/L		<10	<10	<10	<10
bis (2-Chloroethyl) Ether	ug/L		<10	<10	<10	<10
bis(2-Chloroisopropyl) ether	ug/L		<10	<10	<10	<10
bis (2-Ethylhexyl) phthalate	ug/L		<10	<10	<10	<10
2-Chloronaphthalene	ug/L		<10	<10	<10	<10
2-Chlorophenol	ug/L	23	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether	ug/L		<10	<10	<10	<10
Chrysene	ug/L		<10	<10	<10	<10
Di-n-butyl phthalate	ug/L		<10	<10	<10	<10
4-Chloro-3-methylphenol	ug/L		<10	<10	<10	<10
4-Chloroaniline	ug/L		<10	<10	<10	<10
bis(2-Chloroethoxy)methane	ug/L		<10	<10	<10	<10
bis (2-Chloroethyl) Ether	ug/L		<10	<10	<10	<10
bis(2-Chloroisopropyl) ether	ug/L		<10	<10	<10	<10
bis (2-Ethylhexyl) phthalate	ug/L		<10	<10	<10	<10

Table 2: Treatment Plant Quarterly Effluent Sampling Results continued...

SAMPLE MONTH:	ROD	KPDES	April	June	Sept	Dec	
DATE COLLECTED:	Effluent Requirements	Effluent Requirements	4/1/2002	6/12/2002	9/13/2002	12/11/2002	
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...							
2-Chloronaphthalene	ug/L		<10	<10	<10	<10	
2-Chlorophenol	ug/L	23	<10	<10	<10	<10	
4-Chlorophenyl-phenyl ether	ug/L		<10	<10	<10	<10	
Chrysene	ug/L		<10	<10	<10	<10	
Di-n-butyl phthalate	ug/L		<10	<10	<10	<10	
Di-n-octyl phthalate	ug/L		<10	<10	<10	<10	
Dibenz(a,h)anthracene	ug/L		<10	<10	<10	<10	
Dibenzofuran	ug/L		<10	<10	<10	<10	
1,4-Dichlorobenzene	ug/L	5	<10	<10	<10	<10	
1,3-Dichlorobenzene	ug/L		<10	<10	<10	<10	
1,2-Dichlorobenzene	ug/L	5	<10	<10	<10	<10	
3,3'-Dichlorobenzidine	ug/L		<10	<10	<10	<10	
2,4-Dichlorophenol	ug/L		<10	<10	<10	<10	
Diethyl Phthalate	ug/L		<10	<10	<10	<10	
Dimethyl Phthalate	ug/L		<10	<10	<10	<10	
2,4-Dimethylphenol	ug/L	4570	<10	<10	<10	<10	
4,6-Dinitro-2-methylphenol	ug/L	10	<10	<10	<10	<10	
2,4-Dinitrophenol	ug/L		<10	<10	<10	<10	
2,4-Dinitrotoluene	ug/L		<10	<10	<10	<10	
2,6-Dinitrotoluene	ug/L		<10	<10	<10	<10	
Di-n-octylphthalate	ug/L		<10	<10	<10	<10	
Fluoranthene	ug/L		<10	<10	<10	<10	
Fluorene	ug/L		<10	<10	<10	<10	
Hexachlorobenzene	ug/L		<10	<10	<10	<10	
Hexachlorobutadiene	ug/L		<10	<10	<10	<10	
Hexachlorocyclopentadiene	ug/L		<10	<10	<10	<10	
Hexachloroethane	ug/L		<10	<10	<10	<10	
Indeno(1,2,3-cd)pyrene	ug/L		<10	<10	<10	<10	
Isophorone	ug/L		<10	<10	<10	<10	
2-Methylnaphthalene	ug/L		<10	<10	<10	<10	
2-Methylphenol	ug/L		<10	<10	<10	<10	
4-Methylphenol	ug/L		<10	<10	<10	<10	
N-Nitroso-di-n-propylamine	ug/L	11	<10	<10	<10	<10	
N-Nitrosodiphenylamine	ug/L		<10	<10	<10	<10	
Naphthalene	ug/L		<10	<10	<10	<10	
4-Nitroaniline	ug/L		<50	<50	<10	<10	
3-Nitroaniline	ug/L		<50	<50	<10	<10	
2-Nitroaniline	ug/L		<50	<50	<10	<10	
Nitrobenzene	ug/L	250	<10	<10	<10	<10	
4-Nitrophenol	ug/L		<10	<10	<10	<10	
2-Nitrophenol	ug/L		<10	<10	<10	<10	
2,2-oxylbis (1-Chloropropane)	ug/L		<10	<10	<10	<10	
Pentachlorophenol	ug/L		<10	<10	<10	<10	
Phenanthrene	ug/L		<10	<10	<10	<10	
Phenol	ug/L	385000	<10	<10	<10	<10	
Pyrene	ug/L		<10	<10	<10	<10	
1,2,4-Trichlorobenzene	ug/L		<10	<10	<10	<10	
2,4,5-Trichlorophenol	ug/L		<10	<10	<10	<10	
2,4,6-Trichlorophenol	ug/L		<10	<10	<10	<10	
METALS							
PARAMETERS	UNITS						
Antimony	mg/L	0.062	1.6	<0.1	<0.1	<0.01	<0.01
Arsenic	mg/L	0.011	0.05	<0.1	<0.1	<0.01	<0.01
Barium	mg/L	0.231		0.2	0.1	0.15	0.11
Beryllium	mg/L		0.0053	<0.1	<0.1	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.1	<0.1	<0.01	<0.01
Calcium	mg/L			120	110	120	110
Chromium	mg/L	0.011	0.011	<0.1	<0.1	<0.01	<0.01
Copper	mg/L		0.012	0.3	0.5	<0.01	<0.01
Iron	mg/L		1	0.4	0.5	0.21	0.43
Lead	mg/L		0.0032	<0.1	<0.1	<0.1	<0.01
Magnesium	mg/L			92	100	118	79
Manganese	mg/L			0.4	0.5	0.82	0.3
Mercury	mg/L		0.000012	<0.0001	<0.0001	<0.0001	<0.0002
Nickel	mg/L		0.16	<0.1	<0.1	0.02	0.01
Selenium	mg/L		0.005	<0.1	<0.1	<0.01	<0.1
Silver	mg/L		0.00012	<0.1	<0.1	<0.01	<0.1
Thallium	mg/L	0.011	0.04	<0.1	<0.1	<0.01	<0.1
Zinc	mg/L		0.11	<0.1	<0.1	0.04	<0.1

Table 2: Treatment Plant Quarterly Effluent Sampling Results continued...

SAMPLE MONTH:		ROD	KPDES	APRIL	June	Sept	DEC
DATE COLLECTED:		Effluent Requirements	Effluent Requirements	4/1/2002	6/12/2002	9/13/2002	12/11/2002
GENERAL INORGANICS							
PARAMETERS	UNITS						
BOD	mg/L			<5	5	<5	<5
COD	mg/L			55	61	67	57
Cyanide total	mg/L			0.02	<0.01	<0.01	<0.01
Nitrogen, Ammonia	mg/l			3	14	4	4
Nitrogen, Kjeldahl	mg/L			4.2	14.6	6	<0.5
Nitrogen, Nitrate	mg/L			2.8	0.75	<0.5	0.5
Nitrogen, Nitrite	mg/L			0.2	<0.05	<0.5	0.06
Nitrogen, Nitrite, and Nitrate	mg/L			3	0.75	<0.5	0.5
Organic Carbon total	mg/L			34	48	28.5	20
pH	s.u.			7.31	7.38	7.21	7.71
Phosphate Ortho-	mg/L			<1.0	0.18	<0.1	<0.1
Phosphorus total	mg/L			<1	<1	0.27	<0.1
TDS	mg/L			1470	1180	1690	1100
TSS	mg/L			<5	22	<5	<5
Turbidity	NTU			0.25	0.3	1.9	3.5

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Prepared by: E. Taylor
 Checked by: [Signature]

Table 3: Treatment Plant Bi-Annual Influent Sampling Results 2002

SAMPLE MONTH:		ROD	KPDES	June	DEC
DATE COLLECTED:		Requirements	Requirements	6/12/2002	12/11/2002
VOLATILE ORGANIC COMPOUNDS BY SW8260					
PARAMETERS	UNITS				
Acetone	ug/L			1840	4100
Benzene	ug/L		5	5	8
Bromodichloromethane	ug/L			<5	8
Bromoform	ug/L			<5	<5
Bromomethane	ug/L			<10	34
2-Butanone	ug/L			7	2070
Carbon Disulfide	ug/L			<10	16
Carbon Tetrachloride	ug/L			<5	<5
Chlorobenzene	ug/L			<5	<5
Chloroethane	ug/L			<10	<10
Chloroform	ug/L			<5	178
Chloromethane	ug/L			<10	18
Dibromochloromethane	ug/L			<5	<5
1,2-Dichlorobenzene	ug/L			<5	<5
1,4-Dichlorobenzene	ug/L			<5	<5
1,3-Dichlorobenzene	ug/L			<5	<5
1,2-Dichloroethane	ug/L		5	<5	<5
1,1-Dichloroethane	ug/L		5	<5	71
cis-1,2-Dichloroethene	ug/L			7	<5
Trans-1,2-Dichloroethene	ug/L			<5	<5
total 1,2-Dichloroethene	ug/L			N/A	N/A
1,1-Dichloroethene	ug/L		5	<5	7
1,2-Dichloropropane	ug/L		5	<5	<5
trans-1,3-Dichloropropene	ug/L			<5	<5
cis-1,3-Dichloropropene	ug/L			<5	<5
Ethyl benzene	ug/L		5	6	<10
2-Hexanone	ug/L			<10	<10
4-Methyl-2-pentanone	ug/L			260	604
Methylene chloride	ug/L	5870	5	450	924
Styrene	ug/L			<5	<5
1,1,2,2-Tetrachloroethane	ug/L			68	84
Tetrachloroethane	ug/L		5	12	9
Toluene	ug/L		5	<5	55
1,1,2-Trichloroethane	ug/L		5	139	178
1,1,1-Trichloroethane	ug/L			13	15
Trichloroethene	ug/L		5	12	26
Vinyl Chloride	ug/L			<2	<2
Xylenes total	ug/L				
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270					
Acenaphthene	ug/L			<10	<10
Acenaphthylene	ug/L			<10	<10
Anthracene	ug/L			<10	<10
Benzaldehyde	ug/L			<10	<10
Benzo (A) Anthracene	ug/L			<10	<10
Benzo (A) Pyrene	ug/L			<10	<10
Benzo (B) Fluoranthene	ug/L			<10	<10
Benzo(g,h,i)perylene	ug/L			<10	<10
Benzo(k)fluoranthene	ug/L			<10	<10
4-Bromophenyl-phenylether	ug/L			<10	<10
Butyl Benzyl Phthalate	ug/L		10	<10	<10
Carbazole	ug/L			<10	<10
4-Chloro-3-methylphenol	ug/L			<10	<10
4-Chloroaniline	ug/L			<10	<10
bis(2-Chloroethoxy)methane	ug/L			<10	<10
bis (2-Chloroethyl) Ether	ug/L			<10	<10
bis(2-Chloroisopropyl) ether	ug/L			<10	<10
bis (2-Ethylhexyl) phthalate	ug/L			<10	<10
2-Chloronaphthalene	ug/L			<10	<10
2-Chlorophenol	ug/L	23		<10	<10
4-Chlorophenyl-phenyl ether	ug/L			<10	<10
Chrysene	ug/L			<10	<10
Di-n-butyl phthalate	ug/L			<10	<10
Di-n-octyl phthalate	ug/L			<10	<10
Dibenz(a,h)anthracene	ug/L			<10	<10
Dibenzofuran	ug/L			<10	<10
1,4-Dichlorobenzene	ug/L		5	<10	<10
1,3-Dichlorobenzene	ug/L			<10	<10
1,2-Dichlorobenzene	ug/L		5	<10	<10
3,3'-Dichlorobenzidine	ug/L			<10	<10
2,4-Dichlorophenol	ug/L			20	<10
Diethyl Phthalate	ug/L			<10	<10
Dimethyl Phthalate	ug/L			<10	<10

Prepared by: E Taylor
Checked by: [Signature]

Table 3: Treatment Plant Bi-Annual Influent Sampling Results continued...

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	Dec 12/11/2002
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...				
2,4-Dimethylphenol ug/L	4570	10	<10	<10
4,6-Dinitro-2-methylphenol ug/L			<10	<10
2,4-Dinitrophenol ug/L			<10	<10
2,4-Dinitrotoluene ug/L			<10	<10
2,6-Dinitrotoluene ug/L			<10	<10
Di-n-octylphthalate ug/L			<10	<10
Fluoranthene ug/L			<10	<10
Fluorene ug/L			<10	<10
Hexachlorobenzene ug/L			<10	<10
Hexachlorobutadiene ug/L			<10	<10
Hexachlorocyclopentadiene ug/L			<10	<10
Hexachloroethane ug/L			<10	<10
Indeno(1,2,3-cd)pyrene ug/L			<10	<10
Isophorone ug/L			50	60
2-Methylnaphthalene ug/L			<10	<10
2-Methylphenol ug/L			60	<10
4-Methylphenol ug/L			<10	<10
N-Nitroso-di-n-propylamine ug/L	11		<10	<10
N-Nitrosodiphenylamine ug/L			<10	<10
Naphthalene ug/L			<10	<10
4-Nitroaniline ug/L			<50	<50
3-Nitroaniline ug/L			<50	<50
2-Nitroaniline ug/L			<50	<50
Nitrobenzene ug/L	250		50	<10
4-Nitrophenol ug/L			<10	<10
2-Nitrophenol ug/L			<10	<10
2,2-oxybis (1-Chloropropane) ug/L			<10	<10
Pentachlorophenol ug/L			<10	<10
Phenanthrene ug/L			<10	<10
Phenol ug/L	365000	10	290	400
Pyrene ug/L			<10	<10
1,2,4-Trichlorobenzene ug/L			<10	<10
2,4,5-Trichlorophenol ug/L			<10	<10
2,4,6-Trichlorophenol ug/L			<10	<10
METALS				
PARAMETERS	UNITS			
Antimony	mg/L	0.062	1.6	<0.01
Arsenic	mg/L	0.011	0.05	<0.1
Barium	mg/L	0.231		0.19
Beryllium	mg/L		0.0053	<0.1
Cadmium	mg/L		0.0011	<0.1
Calcium	mg/L			100
Chromium	mg/L	0.011	0.011	<0.1
Copper	mg/L		0.012	0.6
Iron	mg/L		1	4.3
Lead	mg/L		0.0032	<0.1
Magnesium	mg/L			89
Manganese	mg/L			1.8
Mercury	mg/L		0.000012	0.0001
Nickel	mg/L		0.16	<0.1
Selenium	mg/L		0.005	<0.1
Silver	mg/L		0.00012	<0.1
Thallium	mg/L	0.011	0.04	<0.1
Zinc	mg/L		0.11	<0.1
GENERAL INORGANICS				
PARAMETERS	UNITS			
BOD	mg/L		123	111
COD	mg/L		254	290
Cyanide total	mg/L		0.01	<0.01
Nitrogen, Ammonia	mg/L		9	8
Nitrogen, Kjeldahl	mg/L		9	10
Nitrogen, Nitrate	mg/L		0.55	<0.5
Nitrogen, Nitrite	mg/L		<0.05	<0.05
Nitrogen, Nitrite, and Nitrate	mg/L		0.55	0.5
Organic Carbon total	mg/L		120	55
pH	s.u.		6.8	7.82
Phosphate Ortho-	mg/L		<0.1	<0.1
Phosphorus total	mg/L		<1	0.1
TDS	mg/L		1280	1300
TSS	mg/L		42	10
Turbidity	NTU		54	300

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky


Prepared by: E Taylor
Checked by: 

Table 4: Summary of Settlement Monument Elevations

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT ONE			
MONUMENT	2001 ELEV	2002 ELEV	CHANGE
SM-01	813.82	813.67	-0.05
SM-02	819.25	819.33	-0.08
SM-03	824.87	824.71	-0.04
SM-04	825.33	825.37	-0.04
SM-05	830.82	830.68	-0.04
SM-06	834.00	834.01	-0.01
SM-07	844.57	844.63	-0.06
SM-08	839.44	839.50	-0.06
SM-09	838.88	838.96	-0.08
SM-10	834.18	834.26	-0.08
SM-11	828.43	828.50	-0.07
SM-12	814.10	814.15	-0.05
SM-13	599.52	599.55	-0.03
SM-14	616.74	616.79	-0.05
SM-15	631.01	631.07	-0.06
SM-16	638.36	638.42	-0.06
SM-17	644.51	644.58	-0.07
SM-18	652.37	652.45	-0.08
SM-19	659.63	659.67	-0.04
SM-20	668.75	668.84	-0.09
SM-21	664.07	664.16	-0.09
SM-22	652.10	652.18	-0.08
SM-23	628.81	628.88	-0.07
SM-24	640.88	640.96	-0.08
SM-25	616.33	616.39	-0.06
SM-26	601.21	601.24	-0.03
SM-27	601.21	601.22	-0.01
SM-28	612.60	612.65	-0.05
SM-29	626.86	626.92	-0.06
SM-30	644.65	644.71	-0.06
SM-31	661.53	661.60	-0.07
SM-32	674.29	674.39	-0.10
SM-33	673.22	673.26	-0.04
SM-34	652.16	652.18	-0.02
SM-35	633.61	633.69	-0.08
SM-36	612.10	612.14	-0.04
SM-37	599.86	599.89	-0.03
SM-38	619.86	619.91	-0.05
SM-39	641.33	641.42	-0.09
SM-40	663.88	663.99	-0.11
SM-41	675.19	675.27	-0.08
SM-42	687.44	687.58	-0.12
SM-43	662.32	662.43	-0.11
SM-44	660.13	660.25	-0.12
SM-45	650.58	650.68	-0.10

MONUMENT	2001 ELEV	2002 ELEV	CHANGE
MON-A	559.94	559.94	0.00
MON-B	538.75	538.75	0.00
MON-C	526.04	526.02	0.02
MON-D	728.37	728.45	-0.08
MON-E	805.02	805.02	0.00
MON-F	814.26	N/A	N/A
TRV DISK #37	831.14	N/A	N/A
TRV DISK#3	824.33	824.42	-0.09

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT TWO			
MONUMENT	2001 ELEV	2002 ELEV	CHANGE
18001	715.83	715.90	-0.07
18002	712.91	712.97	-0.06
18003	702.79	702.82	-0.03
18004	704.66	704.71	-0.05
18005	708.62	708.62	0.00
18006	704.22	704.28	-0.06
18007	694.36	694.37	-0.01
18008	693.27	693.30	-0.03
18009	682.88	682.90	0.08
18010	685.76	685.73	0.03
18011	712.00	712.09	-0.09
18012	700.81	700.90	-0.09
18013	687.20	687.24	-0.04
18014	678.23	678.16	0.07
18015	678.03	678.04	-0.01
18016	674.98	674.97	0.01
18017	669.69	MISSING	N/A
18018	663.78	663.76	0.02
18019	663.80	663.78	0.02
18020	674.92	674.86	0.06
18021	679.06	679.04	0.02
18022	675.04	675.05	-0.01
18023	667.27	667.23	0.04
18024	664.27	664.27	0.00
18025	659.78	659.78	0.02
18026	657.33	657.25	0.08
18027	657.22	657.17	0.05
18028	684.19	684.21	-0.02
18029	683.75	683.77	-0.02
18030	658.23	658.24	-0.01
18031	657.28	657.29	-0.01
18032	661.58	661.57	0.01
18033	656.05	656.02	0.03
18034	649.87	649.85	0.02
18035	653.07	653.02	0.05
18036	652.38	652.36	0.02
18037	651.63	651.62	0.01
18038	653.27	653.25	0.02
18039	658.14	658.11	0.03
18040	652.68	652.68	0.00
18041	649.14	649.10	0.04
18042	664.04	664.03	0.01
18043	662.29	662.33	-0.04
18044	655.28	655.29	-0.01
18045	648.52	648.48	0.06
18046	644.39	644.37	0.02
18047	640.05	639.97	0.08
18048	639.97	639.94	0.03
18049	642.25	642.24	0.01
18050	646.48	646.48	0.00
18051	623.99	623.88	0.01
18052	630.17	630.08	0.09
18053	632.43	632.39	0.04
18054	608.01	607.99	0.02
18055	617.26	617.21	0.05
18056	604.39	604.37	0.02
18057	615.23	615.22	0.01
18058	636.07	636.01	0.06
18059	567.67	567.54	0.13
18060	587.73	587.68	0.05
18061	609.41	609.37	0.04
18062	600.96	600.78	0.18
18063	MISSING	582.09	N/A
18064	647.12	647.09	0.03
18065	646.94	646.86	0.08
18066	642.03	642.00	0.03
18067	618.04	618.00	0.04
18068	616.97	616.94	0.03
18069	606.38	606.35	0.03
18070	578.34	578.28	0.06
18071	583.44	583.40	0.04
18072	601.55	601.47	0.08
18073	581.19	581.12	0.07
18074	559.86	559.80	0.06
18075	566.45	566.38	0.07
18076	599.04	598.98	0.06
18077	599.27	599.24	0.03
18078	610.70	610.66	0.04
18079	615.99	615.84	0.05
18080	619.35	619.30	0.05
18081	613.38	613.35	0.01
18082	616.40	616.35	0.05
18083	622.79	622.78	0.01
18084	626.75	626.69	0.06
18085	621.51	621.44	0.07
18086	631.36	631.30	0.06
18087	639.63	639.54	0.09
18088	561.91	561.86	0.05
18089	560.50	560.44	0.06
18090	564.83	564.77	0.06
18091	565.85	565.79	0.06
18092	559.80	559.74	0.06
18093	579.00	578.94	0.06
18094	588.28	588.14	0.12
18095	546.47	546.40	0.07
18096	645.77	645.76	0.01
18097	648.71	648.72	-0.01
18098	648.36	648.31	0.05
18099	639.77	639.73	0.04
18100	637.46	637.46	0.00
18101	636.90	636.85	0.05
18102	639.95	639.91	0.04
18103	648.03	648.03	0.00
18104	630.29	630.28	0.01
18105	629.35	629.30	0.05
18106	627.61	627.47	0.14
18107	628.41	628.38	0.03
18108	630.55	630.52	0.03
18109	625.39	625.35	0.03
18110	624.66	624.66	0.00
18111	623.82	623.43	0.19
18112	625.29	625.20	0.09
18113	625.86	625.86	0.00
18114	623.35	623.35	0.00
18115	622.72	622.69	0.03
18116	621.51	621.36	0.15
18117	621.38	621.27	0.11
18118	622.35	622.31	0.04
18119	618.35	618.15	0.20
18120	615.70	615.65	0.05
18121	612.25	612.16	0.07
18122	612.46	612.42	0.04
18123	611.99	611.95	0.04
18124	607.69	607.64	0.05
18125	602.12	602.06	0.06
18126	593.92	593.79	0.13
18127	586.05	585.96	0.09
18128	586.18	586.12	0.04
18129	545.50	545.51	-0.01
18130	580.13	580.05	0.08
18131	593.32	593.23	0.09
18132	588.17	588.12	0.05
18133	605.60	605.58	0.04
18134	602.68	602.61	0.07
18135	584.43	584.39	0.04
18136	593.85	593.78	0.07
18137	594.85	594.82	0.03
18138	610.60	610.60	0.00
18139	610.20	610.21	-0.01
18140	617.39	617.40	-0.01
18141	618.94	618.95	-0.01
18142	621.04	621.04	0.00
18143	620.04	619.96	0.08
18144	618.88	618.70	0.18
18145	618.16	618.03	0.13
18146	614.94	614.84	0.10
18147	609.32	609.27	0.05
18148	615.88	615.83	0.05
18149	617.86	617.63	0.23
18150	618.37	618.36	0.01

Monument-A Stamped	559.99	Monument-D Stamped	728.46
Monument-B Stamped	538.75	Monument-E Stamped	805.03
Monument-C Stamped	554.12	Monument-F Stamped	814.26

Table 5: Groundwater Monitoring Well Sampling Results 2002

DATE COLLECTED: SAMPLE ID:		OP UNIT ONE - DECEMBER 6, 2002											OF UNIT TWO JUNE 19, 2002							OP UNIT TWO - DECEMBER 11, 2002							
		MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-11	MW-12	MW-13	MW-14	MW-15	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1	
VOLATILE ORGANIC COMPOUNDS																											
PARAMETERS		UNITS																									
1,1-Dichloroethane		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene		ug/L	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	4	ND	
1,2-Dichloroethane (Total)		ug/L	ND	ND	ND	ND	ND	ND	820	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	
Toluene		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	
Trichloroethene		ug/L	ND	ND	ND	ND	ND	ND	1000	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Xylene (Total)		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	ND	ND	
SEMI-VOLATILE ORGANIC COMPOUNDS																											
PARAMETERS		UNITS																									
Ceprotolacton		ug/L	ND	ND	3	3	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	2	ND	ND	
Naphthalene		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2-Methylnaphthalene		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
METALS																											
PARAMETERS		UNITS																									
Aluminum		ug/L	148	ND	907	19800	39.8	451	1350	677	244	2010	940	462	10800	9170	13800	6390	208	3320	179	1910	62000	3550	10700	829	101
Antimony		ug/L	ND	ND	ND	ND	ND	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic		ug/L	ND	ND	ND	9.8	ND	ND	ND	ND	ND	ND	ND	ND	10.1	7.3	9.4	8.4	ND	ND	ND	ND	34.2	ND	8.5	ND	
Barium		ug/L	27.2	9.8	23.3	304	59.8	32.5	9.3	15.3	15.4	36.8	32.8	39	35.8	62.2	59.5	44.8	10.1	26.3	20.9	14	241	38	73.8	14	
Beryllium		ug/L	ND	ND	0.12	1.2	ND	ND	0.12	ND	ND	0.17	3.18	ND	0.94	0.84	0.74	0.45	ND	0.23	1.17	0.38	3	0.44	0.68	0.19	
Cadmium		ug/L	ND	ND	ND	ND	ND	ND	ND	73.4	ND	ND	ND	ND	0.5	ND	33.1	ND	ND	ND	ND	1.6	1.8	25.8	0.82	ND	
Calcium		ug/L	36000	52200	78000	38300	102000	59800	51600	48800	25700	55800	10000	158000	441000	217000	140000	331000	453000	20000	150000	449000	138000	53300	352000	451000	
Chromium		ug/L	81.8	2.1	39.8	32.8	ND	8.1	2.3	7.1	21.7	9.2	69	3.3	18.8	21.9	28.6	21.4	3.4	11.4	4.8	48.4	91.1	14.4	40.1	ND	
Cobalt		ug/L	1.7	ND	1.7	18.3	47.8	ND	1.2	1.8	4.8	10.6	6.4	4.1	91.2	8.8	25.6	10.2	ND	12.9	ND	55.3	42.2	13.5	21	2.1	
Copper		ug/L	3.3	ND	10	78.3	ND	3.3	1.9	2.2	19.7	13.2	4.8	5.8	41.3	48.4	38.6	24.6	3	10.4	3.1	14.6	99.5	19.8	40.9	4	
Iron		ug/L	551	35.4	1170	48500	4340	831	2340	2290	36500	4820	2510	3600	21100	18900	30700	15400	478	8380	838	4140	119000	11900	27700	1040	
Lead		ug/L	ND	ND	ND	36.3	ND	2.1	ND	ND	ND	8.8	ND	ND	14.8	2.9	11.3	5.8	ND	2.7	ND	5.4	48.3	8.4	8.5	ND	
Magnesium		ug/L	27900	53700	86500	24100	67700	35900	67500	45000	14300	31800	22500	119000	765000	328000	170000	418000	825000	44400	110000	685000	219000	199000	448000	722000	
Manganese		ug/L	87.5	16.3	118	2218	11000	102	116	120	508	264	554	1470	10400	199	1620	378	148	1250	1180	9480	949	744	894	124	
Mercury		ug/L	ND	ND	ND	0.04	ND	ND	0.04	ND	0.05	0.067	ND	ND	ND	ND	ND	ND	ND	ND	0.052	0.12	0.075	0.048	0.088	0.088	
Nickel		ug/L	271	5.2	41.8	51.8	10.3	14	11.7	38.8	99.1	19.1	11.7	483	75.4	158	53.8	9.8	54.5	6.8	402	150	75.1	141	22.8		
Potassium		ug/L	4460	7570	9160	11200	8400	7830	1540	4690	4230	6350	2750	15400	31200	7570	10800	10800	17800	3250	15800	38700	13900	1010	13100		
Selenium		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Silver		ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium		ug/L	53700	84300	151000	18400	49300	50240	70900	53800	23700	49900	98800	108000	491000	348000	125000	425000	448000	57000	98700	478000	238000	82800	408000		
Thallium		ug/L	ND	ND	ND	10	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium		ug/L	1.1	ND	1.7	40.3	ND	1	2.8	1.1	ND	4.4	2.2	1.2	19.0	11.1	26.0	12.2	ND	7.8	ND	3.9	107	12.0	20.9		
Zinc		ug/L	4.5	6.2	8.2	129	8.4	6.8	27.3	24.8	220	60.4	54	24.7	164	90.2	31400	65	47.8	77.4	4	95.5	372	59200	90.3		
Cyanide		ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:
ND = Not detected above laboratory detection limits listed on laboratory data sheets
NA = Not analyzed
Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

Prepared by: E. Taylor
Checked by: [Signature]

Table 6: Groundwater Monitoring Well Sampling Quality Control Summary Results 2002

DATE COLLECTED: SAMPLE ID:		OP UNIT ONE - DECEMBER 6, 2002	OP UNIT TWO JUNE 19, 2002			OP UNIT TWO - DECEMBER 11, 2002		
		OP UNIT ONE - TRIP BLANK	MW-00 Dup	Field Blank	Trip Blank	MW-00 Dup	Field Blank	Trip Blank
VOLATILE ORGANIC COMPOUNDS								
PARAMETERS	UNITS							
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	ND	3	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	ug/L	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND
Xylene (Total)	ug/L	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC COMPOUNDS								
PARAMETERS	UNITS							
Caproclacm	ug/l	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/L	ND	ND	ND	ND	ND	ND	ND
2-Methylaphthalene	ug/L	ND	ND	ND	ND	ND	ND	ND
METALS								
PARAMETERS	UNITS							
Aluminum	ug/L	ND	1900	ND	ND	1100	36.4	ND
Antimony	ug/L	ND	ND	ND	ND	ND	ND	ND
Arsenic	ug/L	ND	ND	ND	ND	ND	ND	ND
Barium	ug/L	ND	19.4	ND	ND	20.6	ND	ND
Beryllium	ug/L	ND	0.24	ND	ND	ND	ND	ND
Cadmium	ug/L	ND	ND	ND	ND	ND	ND	ND
Calcium	ug/L	ND	454000	64.5	ND	16300	ND	ND
Chromium	ug/L	ND	2.5	6.1	ND	5.7	ND	ND
Cobalt	ug/L	ND	3.8	ND	ND	5.6	ND	ND
Copper	ug/L	ND	6.9	2	ND	4.2	ND	ND
Iron	ug/L	ND	4530	ND	ND	1930	ND	ND
Lead	ug/L	ND	ND	ND	ND	ND	ND	ND
Magnesium	ug/L	ND	808000	ND	ND	3900	ND	ND
Manganese	ug/L	ND	399	0.3	ND	4.0	0.24	ND
Mercury	ug/L	ND	ND	ND	ND	0.022	0.078	ND
Nickel	ug/L	ND	14.5	ND	ND	33.1	ND	ND
Potassium	ug/L	ND	17700	112	ND	1970	ND	ND
Selenium	ug/L	ND	ND	ND	ND	ND	ND	ND
Silver	ug/L	ND	ND	ND	ND	ND	ND	ND
Sodium	ug/L	ND	463000	501	ND	40000	ND	ND
Thallium	ug/L	ND	ND	ND	ND	ND	ND	ND
Vanadium	ug/L	ND	4.4	ND	ND	2.9	ND	ND
Zinc	ug/L	ND	33.5	ND	ND	41.7	ND	ND
Cyanide	ug/L	ND	ND	ND	ND	ND	ND	ND

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

MW-00 is a dup of MW-30 on 6-19-02

Dup-1 is a dup of 3G-1 on 12-11-02

Prepared by E Taylor
 Checked by

Table 7 OU-2 EXTRACTION WELLS TOTAL GALLONS 2002

	MW-1 Meter Reading	MW-1 Gallons	MW-2 Meter Reading	MW-2 Gallons	MW-3 Meter Reading	MW-3 Gallons	MW-4 Meter Reading	MW-4 Gallons
January	1,299,418	4,760	98,049	1,579	201,356	40	856	856
February	1,304,660	5,242	99,265	1,216	201,416	60	2,029	1,173
March	1,309,120	4,460	99,900	635	201,456	40	3,795	1,766
April	1,314,977	5,857	100,487	587	201,494	38	5,150	1,355
May	1,320,655	5,678	100,814	327	201,514	20	6,227	1,077
June	1,323,546	2,891	101,071	257	201,526	12	6,235	8
July	1,328,418	4,872	101,383	312	201,549	23	6,832	597
August	1,332,654	4,236	101,654	271	201,559	10	7,450	618
September	1,336,871	4,217	101,864	210	201,569	10	7,982	532
October	1,339,752	2,881	102,001	155	201,578	9	8,939	957
November	1,343,528	3,776	102,173	172	201,589	11	9,090	151
December	1,347,631	4,103	102,377	204	201,601	12	9,090	0
Total Gallons		48,213		4,346		245		8,234


Prepared by: E. Taylor
 Checked by: 

Table 8 OU-1 2002 Pumping Record

NORTH TANK			
DATE	Dipstick Reading	Dipstick Reading	Gallons
1/4/2002	33 1/2		
1/9/2002	34 1/8	27 3/4	845
1/16/2002	29 3/4		
1/21/2002	30 7/8	21 7/8	1136
1/28/2002	27 3/8		
1/30/2002			
2/1/2002	32		
2/4/2002			
2/6/2002			
2/8/2002			
2/11/2002	38 7/8		
2/15/2002	39 7/8		
2/18/2002	40		
2/25/2002	43 1/2		
3/6/2002	47 1/2	38 1/2	1259
3/13/2002	43 3/4	35 3/4	1114
3/20/2002			
3/25/2002	48		
3/27/2002	50 7/8		
3/28/2002			
3/29/2002	63 7/8		
4/1/2002	58 1/4		
4/3/2002			
4/5/2002	60 1/4		
4/8/2002	61 1/2		
4/10/2002	61 1/2		
4/12/2002	63	55	1049
4/15/2002	56 3/8	49 5/8	905
4/17/2002	49 3/4		
4/22/2002	50 1/2		
4/29/2002	58 1/8		
5/1/2002	59 1/2		
5/2/2002			
5/6/2002	63 3/8	60 1/2	366
5/8/2002			
5/13/2002	66	56 1/2	1202
5/15/2002	60		
5/20/2002	63 5/8		
5/24/2002	65 7/8		
5/29/2002	67		
6/3/2002	67 1/4		
6/7/2002	69		
6/10/2002	69 1/8	58	1383
6/14/2002	58	53 3/4	672

SOUTH TANK			
DATE	Dipstick Reading	Dipstick Reading	Gallons
1/4/2002	35 3/8	23 3/4	1577
1/9/2002	25 7/8		
1/16/2002	30 3/4	26 1/4	583
1/21/2002	28 1/8		
1/28/2002	57 3/4	40 1/2	1206
1/30/2002	52	46 1/4	801
2/1/2002	57 3/8	49 3/8	1094
2/4/2002	69 3/8	57 3/8	1495
2/6/2002	60 3/4	50 3/4	1347
2/8/2002	54 1/2	44 1/4	1424
2/11/2002	46 3/8	40	893
2/15/2002	42 3/4	35 1/8	1059
2/18/2002	36 3/4	29 1/4	1110
2/25/2002	34 7/8	29 1/4	1555
3/6/2002	30 1/2		
3/13/2002	37 1/8		
3/20/2002	77 1/8	58 3/4	
3/25/2002	59	48 3/8	1448
3/27/2002	63 3/8	55 5/8	1012
3/28/2002	66 3/8	57 1/2	1128
3/29/2002	58 1/2	49 1/2	1275
4/1/2002	63 1/4	52 1/2	1423
4/3/2002	57 3/8	39 3/8	1592
4/5/2002	41 3/8	35 3/4	781
4/8/2002	37 3/8	29	1129
4/10/2002	29 3/4	24 1/8	716
4/12/2002	25 3/8		
4/15/2002	36 3/8		
4/17/2002	44 3/8	34 5/8	1354
4/22/2002	40	30 3/8	1313
4/29/2002	53 1/2	42 7/8	1480
5/1/2002	48	38 7/8	1262
5/2/2002	39 3/4	32 1/8	1045
5/6/2002	43 1/2	41 1/8	333
5/8/2002	45 5/8	35 3/8	1428
5/13/2002	46 3/4	38	1223
5/15/2002	52 1/2	46 1/4	1225
5/20/2002	48	34 1/2	2247
5/24/2002	35 1/4	32 3/8	390
5/29/2002	35	22 3/4	1587
6/3/2002	25 1/4		
6/7/2002	28 1/4		
6/10/2002	31 1/8		
6/14/2002	32	25 3/4	813

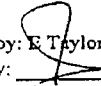
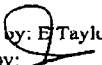
Prepared by: E Taylor
 Checked by: 

Table 8 OU-1 2002 Pumping Record

NORTH TANK			
DATE	Dipstick Reading	Dipstick Reading	Gallons
6/26/2002	53 3/4	47 3/4	832
7/1/2002	48 1/2	39 1/4	1295
7/3/2002	38 3/4	27 3/4	1481
7/8/2002			
7/29/2002	31 7/8		
8/28/2002	28 1/4		
8/30/2002	28 1/2		
9/16/2002	28		
9/18/2002	28 1/4		
10/2/2002	30 5/8		
10/4/2002			
10/21/2002	37		
10/25/2002	36 1/8		
10/30/2002	38 1/8		
11/1/2002			
11/4/2002	41 1/4		
11/6/2002	43 3/8		
11/8/2002	45 3/8	44 1/2	123
11/13/2002	49 1/2		
11/18/2002	51 1/8	40 1/8	1471
11/20/2002			
11/25/2002	41 1/2		
11/27/2002	43	21 1/2	2615
12/16/2002	28 1/4		
12/18/2002	28 1/4		
12/23/2002			
12/26/2002	44 1/8		
12/27/2002	45 1/2	21	3256
12/30/2002	24		
Total Gallons North Tank			21004

SOUTH TANK			
DATE	Dipstick Reading	Dipstick Reading	Gallons
6/26/2002			
7/1/2002	34 1/4		
7/3/2002			
7/8/2002	34 7/8	25	1302
7/29/2002	27 7/8		
8/26/2002	42		
8/30/2002	42	34 1/2	1048
9/16/2002	42		
9/18/2002	42 1/4	34 5/8	1050
10/2/2002	51	41 3/8	1346
10/4/2002	42 1/8	34 1/8	1107
10/21/2002	58 1/8	52 1/8	813
10/25/2002	51 1/2		
10/30/2002	59	51	1083
11/1/2002	55 5/8	45 1/2	1401
11/4/2002	46 7/8	41	823
11/6/2002	45 1/4	35 5/8	1341
11/8/2002			
11/13/2002	54 1/8	43 1/2	1478
11/18/2002	48 1/8		
11/20/2002	49 3/4	42	1085
11/25/2002	43 3/4	35 1/4	1182
11/27/2002			
12/16/2002	56 1/4	31	2486
12/18/2002	36 1/8	17	3094
12/23/2002	48	42 3/4	735
12/26/2002	53 7/8	45 1/2	1164
12/27/2002	47 1/2	25	3053
12/30/2002	32 3/8	19 1/4	1539
Total Gallons South Tank			72661

Prepared by: E Taylor
 Checked by: 

*2003 Annual Operation & Maintenance Report
Smith's Farm Operable Units One and Two
MACTEC Project 6311-03-0004*

March 29, 2004

TABLES

Table 1

March 2004

Summary of Treated Leachate Volume - Operable Units One and Two

Month	Plant Discharge Totals	OU-2 Extraction Wells Discharge Totals				OU-2 Leachate Collection Trench	OU-1 Tanks Discharge Totals		Monthly Rainfall
	Effluent	MW-1	MW-2	MW-3	MW-4	Estimated Discharge Totals	North Tank	South Tank	Inches
JAN	94459	3583	0	0	349	82386	1479	6662	1.09
FEB	94219	3576	174	27	378	83170	0	6894	4.9
MAR	89307	4210	156	23	394	73222	2809	8493	1.6
APR	95773	4010	261	29	228	88352	0	2893	6.4
MAY	132777	3593	253	19	0	122434	0	6478	6.45
JUN	69289	3500	194	12	472	62597	1232	1282	3.22
JUL	99290	3042	74	36	98	87971	5429	2640	2.95
AUG	95397	2578	194	24	0	89117	1628	1856	4.53
SEP	88209	569	144	29	689	83916	0	2862	6.1
OCT	103418	112	121	37	227	99548	1595	1778	3.33
NOV	86123	3476	117	26	815	78879	0	2810	5.69
DEC	106252	4177	120	17	889	88458	4396	8195	3.8
TOTALS	1154513	36426	1808	279	4539	1040050	18568	52843	50.06


NOTES:

All discharge volumes in gallons.

Volumes generated by MW-1 Extraction Well have decreased by 1,380 gallons per month since 2002

Volumes generated by MW-2 Extraction Well have decreased by 350 gallons per month since 2002

Volumes generated by MW-4 Extraction Well have decreased by 380 gallons since 2002.

Prepared by: E Taylor
 Checked by: 

Treatment Plant Quarterly Effluent Sampling Results 2003

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	April 3/26/2003	June 6/13/2003	Aug 8/29/2003	Dec 12/5/2003
VOLATILE ORGANIC COMPOUNDS BY SW8260						
PARAMETERS	UNITS					
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<5	<5
VINYL CHLORIDE	ug/L	5	<2	<2	<2	<2
CHLOROMETHANE	ug/L		<10	<10	<10	<10
BROMOMETHANE	ug/L		<10	<10	<10	<10
CHLOROETHANE	ug/L		<10	<10	<10	<10
TRICHLOROFLUOROMETHANE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
METHYLENE CHLORIDE	ug/L		<10	<10	<10	<10
ACETONE	ug/L		<50	<50	<50	<50
ACROLEIN	ug/L		<50	<50	<50	<50
IODOMETHANE	ug/L		<5	<5	<5	<5
CARBON DISULFIDE	ug/L		<10	<10	<10	<10
ACRYLONITRILE	ug/L		<50	<50	<50	<50
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHANE	ug/L		<5	<5	<5	<5
VINYL ACETATE	ug/L		<50	<50	<50	<50
2-BUTANONE (MEK)	ug/L	5	<50	<50	<50	<50
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<5	<5
BROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
CHLOROFORM	ug/L		<5	<5	<5	<5
2,2-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
1,1,1-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,1-DICHLOROPROPYLENE	ug/L	5	<5	<5	<5	<5
CARBON TETRACHLORIDE	ug/L		<5	<5	<5	<5
BENZENE	ug/L		<5	<5	<5	<5
1,2-DICHLOROETHANE	ug/L	5	<5	<5	<5	<5
TRICHLOROETHYLENE	ug/L		<5	<5	<5	<5
DIBROMOMETHANE	ug/L		<5	<5	<5	<5
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<5	<5
BROMODICHLOROMETHANE	ug/L		<5	<5	<5	<5
2-CHLOROETHYL VINYL ETHER	ug/L		<10	<10	<10	<10
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<5	<5
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	<50	<50	<50	<50
TOLUENE	ug/L	5	<5	<5	<5	<5
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,3-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<5	<5
TETRACHLOROETHYLENE	ug/L		<5	<5	<5	<5
2-HEXANONE	ug/L		<10	<10	<10	<10
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	<5	<5	<5
CHLOROBENZENE	ug/L		<5	<5	<5	<5
1-CHLOROHEXANE	ug/L		<5	<5	<5	<5
ETHYLBENZENE	ug/L		<5	<5	<5	<5
M-XYLENE / P-XYLENE	ug/L		<10	<10	<10	<10
O-XYLENE	ug/L		<5	<5	<5	<5
STYRENE	ug/L		<5	<5	<5	<5
BROMOFORM	ug/L		<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<5	<5
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<5	<5

Prepared by: E. Taylor
 Checked by:

Treatment Plant Quarterly Effluent Sampling Results continued...

SAMPLE MONTH: DATE COLLECTED:		ROD Requirements	KPDES Requirements	April 3/26/2003	June 6/13/2003	Aug 8/29/2003	Dec 12/5/2003
VOLATILE ORGANIC COMPOUNDS BY SW8260 continue...							
BROMOBENZENE	ug/L			<5	<5	<5	<5
TRANS-1,4-DICHLORO-2-BUTENE	ug/L			<10	<10	<10	<10
N-PROPYLBENZENE	ug/L			<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	ug/L			<5	<5	<5	62
2-CHLOROTOLUENE	ug/L			<5	<5	<5	<5
3-CHLOROTOLUENE	ug/L			<5	<5	<5	<5
4-CHLOROTOLUENE	ug/L			<5	<5	<5	<5
1,3,5-TRIMETHYLBENZENE	ug/L	23		<5	<5	<5	<5
TERT-BUTYLBENZENE	ug/L			<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE	ug/L			<5	<5	<5	<5
SEC-BUTYLBENZENE	ug/L			<5	<5	<5	<5
1,3-DICHLOROBENZENE	ug/L			<5	<5	<5	<5
1,4-DICHLOROBENZENE	ug/L			<5	<5	<5	<5
4-ISOPROPYLTOLUENE	ug/L			<5	<5	<5	<5
1,2-DICHLOROBENZENE	ug/L		5	<5	<5	<5	<5
N-BUTYLBENZENE	ug/L			<5	<5	<5	<5
1,2-DIBROMO-3-CHLOROPROPANE	ug/L		5	<5	<5	<5	<5
1,2,4-TRICHLOROBENZENE	ug/L			<5	<5	<5	<5
NAPHTHALENE	ug/L			<5	<5	<5	<5
HEXACHLOROBUTADIENE	ug/L			<5	<5	<5	<5
1,2,3-TRICHLOROBENZENE	ug/L			<5	<5	<5	<5
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270							
PYRIDINE	ug/L			<10	<10	<10	<10
N-NITROSODIMETHYLAMINE	ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHYL)ETHER	ug/L			<10	<10	<10	<10
PHENOL	ug/L			<10	<10	<10	<10
2-CHLOROPHENOL	ug/L			<10	<10	<10	<10
1,3-DICHLOROBENZENE	ug/L			<10	<10	<10	<10
1,4-DICHLOROBENZENE	ug/L			<10	<10	<10	<10
1,2-DICHLOROBENZENE	ug/L			<10	<10	<10	<10
BENZYL ALCOHOL	ug/L			<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER	ug/L			<10	<10	<10	<10
2-METHYLPHENOL	ug/L			<10	<10	<10	<10
HEXACHLOROETHANE	ug/L			<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE	ug/L	11		<10	<10	<10	<10
3&4-METHYLPHENOL	ug/L			<10	<10	<10	<10
NITROBENZENE	ug/L			<10	<10	<10	<10
ISOPHORONE	ug/L			<10	<10	<10	<10
2-NITROPHENOL	ug/L			<10	<10	<10	<10
2,4-DIMETHYLPHENOL	ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHOXY)METHANE	ug/L	250		<10	<10	<10	<10
2,4-DICHLOROPHENOL	ug/L			<10	<10	<10	<10
2,6-DICHLOROPHENOL	ug/L			<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE	ug/L			<10	<10	<10	<10
NAPHTHALENE	ug/L			<10	<10	<10	<10
4-CHLOROANILINE	ug/L			<10	<10	<10	<10
HEXACHLOROBUTADIENE	ug/L	365000	10	<10	<10	<10	<10
4-CHLORO-3-METHYLPHENOL	ug/L			<10	<10	<10	<10

Treatment Plant Quarterly Effluent Sampling Results continued...

SAMPLE MONTH:	ROD	KPDES	April	June	Aug	Dec
DATE COLLECTED:	Requirements	Requirements	3/26/2003	6/13/2003	8/29/2003	12/5/2003
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...						
2-METHYLNAPHTHALENE ug/L			<10	<10	<10	<10
HEXACHLOROCYCLOPENTADIENE ug/L			<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2-CHLORONAPHTHALENE ug/L			<10	<10	<10	<10
2-NITROANILINE ug/L			<50	<50	<50	<50
DIMETHYL PHTHALATE ug/L			<10	<10	<10	<10
ACENAPHTHYLENE ug/L	23		<10	<10	<10	<10
2,6-DINITROTOLUENE ug/L			<10	<10	<10	<10
ACENAPHTHENE ug/L			<10	<10	<10	<10
3-NITROANILINE ug/L			<50	<50	<50	<50
2,4-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROPHENOL ug/L			<10	<10	<10	<10
DIBENZOFURAN ug/L			<10	<10	<10	<10
2,4-DINITROTOLUENE ug/L		5	<10	<10	<10	<10
FLUORENE ug/L			<10	<10	<10	<10
DIETHYL PHTHALATE ug/L		5	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER ug/L			<10	<10	<10	<10
2-METHYL-4,6-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROANILINE ug/L			<50	<50	<50	<50
N-NITROSO-DIPHENYLAMINE ug/L			<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER ug/L	4570	10	<10	<10	<10	<10
HEXACHLOROBENZENE ug/L			<10	<10	<10	<10
PENTACHLOROPHENOL ug/L			<10	<10	<10	<10
ANTHRACENE ug/L			<10	<10	<10	<10
PHENANTHRENE ug/L			<10	<10	<10	<10
CARBAZOLE ug/L			<10	<10	<10	<10
DI-N-BUTYL PHTHALATE ug/L			<10	<10	<10	<10
FLUORANTHENE ug/L			<10	<10	<10	<10
BENZIDINE ug/L			<10	<10	<10	<10
PYRENE ug/L			<10	<10	<10	<10
BENZYL BUTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(A)ANTHRACENE ug/L			<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE ug/L			<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE ug/L			<10	<10	<10	<10
CHRYSENE ug/L			<10	<10	<10	<10
DI-N-OCTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(B)FLUORANTHENE ug/L			<10	<10	<10	<10
BENZO(K)FLUORANTHENE ug/L	11		<10	<10	<10	<10
BENZO(A)PYRENE ug/L			<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE ug/L			<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE ug/L			<10	<10	<10	<10
BENZO(G,H,I)PERYLENE ug/L			<10	<10	<10	<10

Treatment Plant Quarterly Effluent Sampling Results continued...

SAMPLE MONTH:		ROD	KPDES	April	June	Aug	Dec
DATE COLLECTED:		Requirements	Requirements	3/26/2003	6/13/2003	8/29/2003	12/5/2003
METALS Compound by SW846, 6010 / 7470							
PARAMETERS	UNITS						
Antimony	mg/L	0.062	1.6	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	0.011	0.05	<0.01	<0.01	<0.01	<0.01
Barium	mg/L	0.231		0.05	0.1	0.05	0.08
Beryllium	mg/L		0.0053	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L			140	110	140	110
Chromium	mg/L	0.011	0.011	<0.01	<0.01	<0.01	<0.01
Copper	mg/L		0.012	<0.01	<0.01	<0.01	<0.01
Iron	mg/L		1	0.54	0.13	0.12	0.07
Lead	mg/L		0.0032	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L			120	110	106	94.9
Manganese	mg/L			0.35	0.13	0.16	0.02
Mercury	mg/L		0.000012	0.02	0.02	<0.0002	<0.0002
Nickel	mg/L		0.16	<0.01	0.01	0.02	0.01
Selenium	mg/L		0.005	<0.01	<0.01	<0.01	0.03
Silver	mg/L		0.00012	<0.01	<0.01	<0.01	<0.01
Thallium	mg/L	0.011	0.04	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L		0.11	0.02	0.02	0.04	<0.1
GENERAL INORGANICS							
PARAMETERS	UNITS						
BOD	mg/L			<5	<5	<5	<5
COD	mg/L			56	47	54	27
Cyanide total	mg/L			7	<0.01	<0.01	0.06
Nitrogen, Ammonia	mg/L			55	<1.0	1	<1.0
Nitrogen, Kjeldahl	mg/L			3.7	2.4	2.6	1
Nitrogen, Nitrate	mg/L			1.9	0.5	<0.5	2.05
Nitrogen, Nitrite	mg/L			<0.01	0.5	<0.02	<0.1
Nitrogen, Nitrite, and Nitrate	mg/L			1.9	0.518	<0.05	2.05
Organic Carbon total	mg/L			22	23	33	16
pH	s.u.			7.6	7.61	7.59	7.4
Phosphate Ortho-	mg/L			<0.5	0.12	0.15	<0.3
Phosphorus total	mg/L			0.2	0.1	0.2	0.11
TDS	mg/L			1540	1340	1330	1404
TSS	mg/L			7	<5	3	<5
Turbidity	NTU			1.7	0.37	0.31	0.7

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Treatment Plant Bi-Annual Influent Sampling Results 2003

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	Dec 12/11/2002	June 6/13/2003	Dec 12/5/2003
VOLATILE ORGANIC COMPOUNDS BY SW8260						
PARAMETERS	UNITS					
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<25	<5
VINYL CHLORIDE	ug/L	5	<2	<2	<10	<2
CHLOROMETHANE	ug/L		<10	18	<50	<10
BROMOMETHANE	ug/L		<10	34	<50	<10
CHLOROETHANE	ug/L		<10	<10	<50	<10
TRICHLOROFLUOROMETHANE	ug/L		<5	<5	<25	<5
1,1-DICHLOROETHYLENE	ug/L		<5	7	<25	<5
METHYLENE CHLORIDE	ug/L		<10	924	800	640
ACETONE	ug/L		<50	4100	3040	4840
ACROLEIN	ug/L		<50	<50	<250	<50
IODOMETHANE	ug/L		<5	<5	<25	<5
CARBON DISULFIDE	ug/L		<10	16	<50	<10
ACRYLONITRILE	ug/L		<50	<50	<250	<50
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<25	<5
1,1-DICHLOROETHANE	ug/L		<5	71	<80	48
VINYL ACETATE	ug/L		<50	<50	<250	<50
2-BUTANONE (MEK)	ug/L	5	<50	2070	1390	1480
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<25	<5
BROMOCHLOROMETHANE	ug/L		<5	8	<25	<5
CHLOROFORM	ug/L		<5	178	550	310
2,2-DICHLOROPROPANE	ug/L		<5	<5	<25	<5
1,1,1-TRICHLOROETHANE	ug/L	5	<5	15	70	21
1,1-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5
CARBON TETRACHLORIDE	ug/L		<5	<5	<25	<5
BENZENE	ug/L		<5	8	<25	<5
1,2-DICHLOROETHANE	ug/L	5	<5	5	<25	<5
TRICHLOROETHYLENE	ug/L		<5	26	50	24
DIBROMOMETHANE	ug/L		<5	<5	<25	<5
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<25	<5
BROMODICHLOROMETHANE	ug/L	5	<5	<5	<25	<5
2-CHLOROETHYL VINYL ETHER	ug/L		<10	140	<50	<10
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	<50	604	<250	520
TOLUENE	ug/L	5	<5	55	<50	39
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<25	<5
1,1,2-TRICHLOROETHANE	ug/L	5	<5	178	140	99
1,3-DICHLOROPROPANE	ug/L		<5	<5	<25	<5
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<25	<5
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<25	<5
TETRACHLOROETHYLENE	ug/L		<5	6	<25	7
2-HEXANONE	ug/L		<10	<10	<50	17
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	8	100	9
CHLOROBENZENE	ug/L		<5	<5	<25	<5
1-CHLOROHEXANE	ug/L		<5	<5	<25	<5
ETHYLBENZENE	ug/L		<5	10	<25	<5
M-XYLENE / P-XYLENE	ug/L		<10	43	<25	15
O-XYLENE	ug/L		<5	11	<25	5
STYRENE	ug/L		<5	<5	<25	<5
BROMOFORM	ug/L		<5	<5	<25	<5
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<25	<5
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<25	<5

Treatment Plant Bi-Annual Influent Sampling Results continued...

SAMPLE MONTH:	ROD	KPDES	June	Dec	June	Dec
DATE COLLECTED:	Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003
VOLATILE ORGANIC COMPOUNDS BY SW8260 continue...						
BROMOBENZENE ug/L			<5	<5	<25	<5
TRANS-1,4-DICHLORO-2-BUTENE ug/L			<10	<10	<50	<10
N-PROPYLBENZENE ug/L			<5	<5	<25	<5
1,1,2,2-TETRACHLOROETHANE ug/L			<5	84	100	62
2-CHLOROTOLUENE ug/L			<5	<5	<25	<5
3-CHLOROTOLUENE ug/L			<5	<5	<25	<5
4-CHLOROTOLUENE ug/L			<5	<5	<25	<5
1,3,5-TRIMETHYLBENZENE ug/L	23		<5	<5	<25	<5
TERT-BUTYLBENZENE ug/L			<5	<5	<25	<5
1,2,4-TRIMETHYLBENZENE ug/L			<5	<5	<25	<5
SEC-BUTYLBENZENE ug/L			<5	<5	<25	<5
1,3-DICHLOROBENZENE ug/L			<5	<5	<25	<5
1,4-DICHLOROBENZENE ug/L			<5	<5	<25	<5
4-ISOPROPYLTOLUENE ug/L			<5	<5	<25	<5
1,2-DICHLOROBENZENE ug/L		5	<5	<5	<25	<5
N-BUTYLBENZENE ug/L			<5	<5	<25	<5
1,2-DIBROMO-3-CHLOROPROPANE ug/L		5	<5	<5	<25	<5
1,2,4-TRICHLOROBENZENE ug/L			<5	<5	<25	<5
NAPHTHALENE ug/L			<5	<5	<25	<5
HEXACHLOROBUTADIENE ug/L			<5	<5	<25	<5
1,2,3-TRICHLOROBENZENE ug/L			<25	<5	<25	<5
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270						
PYRIDINE ug/L			<10	<10	<10	<10
N-NITROSODIMETHYLAMINE ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHYL)ETHER ug/L			<10	<10	<10	<10
PHENOL ug/L			<10	400	320	400
2-CHLOROPHENOL ug/L			<10	<10	<10	<10
1,3-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,4-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,2-DICHLOROBENZENE ug/L			<10	<10	<10	<10
BENZYL ALCOHOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER ug/L			<10	<10	<10	<10
2-METHYLPHENOL ug/L			<10	<10	<10	<10
HEXACHLOROETHANE ug/L			<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE ug/L	11		<10	<10	<10	<10
3&4-METHYLPHENOL ug/L			<10	120	150	120
NITROBENZENE ug/L			<10	<10	<10	<10
ISOPHORONE ug/L			<10	60	580	60
2-NITROPHENOL ug/L			<10	<10	<10	<10
2,4-DIMETHYLPHENOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHOXY)METHANE ug/L	250		<10	<10	<10	<10
2,4-DICHLOROPHENOL ug/L			<10	<10	<10	<10
2,6-DICHLOROPHENOL ug/L			<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE ug/L			<10	<10	<10	<10
NAPHTHALENE ug/L			<10	<10	<10	<10
4-CHLOROANILINE ug/L			<10	<10	<10	<10
HEXACHLOROBUTADIENE ug/L	365000	10	<10	<10	<10	<10
4-CHLORO-3-METHYLPHENOL ug/L			<10	<10	<10	<10

Treatment Plant Bi-Annual Influent Sampling Results continued...

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	Dec 12/11/2002	June 6/13/2003	Dec 12/5/2003
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...						
2-METHYLNAPHTHALENE ug/L			<10	<10	<10	<10
HEXACHLOROCYCLOPENTADIENE ug/L			<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2-CHLORONAPHTHALENE ug/L			<10	<10	<10	<10
2-NITROANILINE ug/L			<50	<50	<50	<50
DIMETHYL PHTHALATE ug/L			<10	<10	<10	<10
ACENAPHTHYLENE ug/L	23		<10	<10	<10	<10
2,6-DINITROTOLUENE ug/L			<10	<10	<10	<10
ACENAPHTHENE ug/L			<10	<10	<10	<10
3-NITROANILINE ug/L			<50	<50	<50	<50
2,4-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROPHENOL ug/L			<10	<10	<10	<10
DIBENZOFURAN ug/L			<10	<10	<10	<10
2,4-DINITROTOLUENE ug/L		5	<10	<10	<10	<10
FLUORENE ug/L			<10	<10	<10	<10
DIETHYL PHTHALATE ug/L		5	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER ug/L			<10	<10	<10	<10
2-METHYL-4,6-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROANILINE ug/L			<50	<50	<50	<50
N-NITROSO-DIPHENYLAMINE ug/L			<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER ug/L	4570	10	<10	<10	<10	<10
HEXACHLOROBENZENE ug/L			<10	<10	<10	<10
PENTACHLOROPHENOL ug/L			<10	<10	<10	<10
ANTHRACENE ug/L			<10	<10	<10	<10
PHENANTHRENE ug/L			<10	<10	<10	<10
CARBAZOLE ug/L			<10	<10	<10	<10
DI-N-BUTYL PHTHALATE ug/L			<10	<10	<10	<10
FLUORANTHENE ug/L			<10	<10	<10	<10
BENZIDINE ug/L			<10	<10	<10	<10
PYRENE ug/L			<10	<10	<10	<10
BENZYL BUTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(A)ANTHRACENE ug/L			<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE ug/L			<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE ug/L			<10	<10	<10	<10
CHRYSENE ug/L			<10	<10	<10	<10
DI-N-OCTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(B)FLUORANTHENE ug/L			<10	<10	<10	<10
BENZO(K)FLUORANTHENE ug/L	11		<10	<10	<10	<10
BENZO(A)PYRENE ug/L			<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE ug/L			<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE ug/L			<10	<10	<10	<10
BENZO(G,H,I)PERYLENE ug/L			<10	<10	<10	<10
[Surrogate Rec. - B/N] ug/L						
NITROBENZENE-D5 ug/L	250		105	81	26	81
2-FLUOROBIPHENYL ug/L			85	102	23	102
P-TERPHENYL ug/L			107	85	37	85
[Surrogate Rec. - Acids] ug/L						
2-FLUOROPHENOL ug/L			68	49	12	49
PHENOL-D6 ug/L			44	39	17	39
2,4,6-TRIBROMOPHENOL ug/L	365000	10	61	97	40	97

Treatment Plant BI-Annual Influent Sampling Results continued...

SAMPLE MONTH:		ROD	KPDES	June	Dec	June	Dec
DATE COLLECTED:		Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003
METALS Compound by SW846, 6010 / 7470							
PARAMETERS	UNITS						
Antimony	mg/L	0.062	1.6	<0.1	<0.01	<0.1	<0.01
Arsenic	mg/L	0.011	0.05	<0.1	<0.01	<0.01	<0.01
Barium	mg/L	0.231		0.1	0.19	0.12	0.09
Beryllium	mg/L		0.0053	<0.1	<0.01	<0.1	<0.01
Cadmium	mg/L		0.0011	<0.1	<0.01	<0.1	<0.01
Calcium	mg/L			100	120	110	110
Chromium	mg/L	0.011	0.011	<0.1	<0.01	<0.1	<0.01
Copper	mg/L		0.012	0.6	<0.01	<0.01	<0.01
Iron	mg/L		1	4.3	8	5.98	9.18
Lead	mg/L		0.0032	<0.1	<0.01	<0.1	<0.01
Magnesium	mg/L			89	92	120	96.7
Manganese	mg/L			1.8	1.51	1.69	1.4
Mercury	mg/L		0.000012	0.0001	<0.0002	0.0001	<0.0002
Nickel	mg/L		0.16	<0.1	0.02	0.03	0.03
Selenium	mg/L		0.005	<0.1	<0.01	<0.1	<0.01
Silver	mg/L		0.00012	<0.1	<0.01	<0.1	<0.01
Thallium	mg/L	0.011	0.04	<0.1	<0.01	<0.1	<0.01
Zinc	mg/L		0.11	<0.1	0.02	0.05	0.03
GENERAL INORGANICS							
PARAMETERS	UNITS						
BOD	mg/L			123	111	81	47
COD	mg/L			254	290	197	120
Cyanide total	mg/L			0.01	<0.01	0.01	0.04
Nitrogen, Ammonia	mg/L			9	8	6.9	6
Nitrogen, Kjeldahl	mg/L			9	10	7.9	6
Nitrogen, Nitrate	mg/L			0.55	<0.5	<0.5	<0.01
Nitrogen, Nitrite	mg/L			<0.05	<0.05	0.007	<0.01
Nitrogen, Nitrite, and Nitrate	mg/L			0.55	0.5	0.007	<0.01
Organic Carbon total	mg/L			120	55	49.3	42
pH	s.u.			6.8	7.82	6.67	7
Phosphate Ortho-	mg/L			<0.1	<0.1	0.1	<0.3
Phosphorus total	mg/L			<1	0.1	<0.1	0.09
TDS	mg/L			1290	1300	1310	1424
TSS	mg/L			42	10	11	10
Turbidity	NTU			54	300	100	36.6

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Prepared by: S. Taylor
 Checked by:

OP Unit One Summary of Settlement Monuments and Elevations

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT ONE			
MONUMENT	2002 ELEV.	2003 ELEV.	CHANGE
SM-01	613.67	613.65	0.02
SM-02	619.33	619.27	0.06
SM-03	624.71	624.69	0.02
SM-04	625.37	625.35	0.02
SM-05	630.66	630.63	0.03
SM-06	634.01	634.04	-0.03
SM-07	644.63	644.59	0.04
SM-08	639.50	639.47	0.03
SM-09	636.96	636.89	0.07
SM-10	634.26	634.21	0.05
SM-11	628.50	628.45	0.05
SM-12	614.15	614.13	0.02
SM-13	599.55	MISSING	N/A
SM-14	616.79	616.78	0.01
SM-15	631.07	631.04	0.03
SM-16	638.42	638.39	0.03
SM-17	644.58	644.54	0.04
SM-18	652.45	652.41	0.04
SM-19	659.67	659.62	0.05
SM-20	668.84	668.78	0.06
SM-21	664.16	664.11	0.05
SM-22	652.18	652.14	0.04
SM-23	628.88	628.85	0.03

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT ONE			
MONUMENT	2002 ELEV.	2003 ELEV.	CHANGE
SM-24	640.96	640.91	0.05
SM-25	616.39	616.37	0.02
SM-26	601.24	601.22	0.02
SM-27	601.22	601.21	0.01
SM-28	612.65	612.63	0.02
SM-29	626.92	626.88	0.04
SM-30	644.71	644.67	0.04
SM-31	661.60	661.55	0.05
SM-32	674.39	674.35	0.04
SM-33	673.26	673.25	0.01
SM-34	652.18	652.12	0.06
SM-35	633.69	633.65	0.04
SM-36	612.14	612.11	0.03
SM-37	599.89	599.85	0.04
SM-38	619.91	619.88	0.03
SM-39	641.42	641.37	0.05
SM-40	663.99	663.96	0.03
SM-41	675.27	675.22	0.05
SM-42	687.56	687.52	0.04
SM-43	662.43	662.40	0.03
SM-44	660.25	660.19	0.06
SM-45	650.68	650.63	0.05

CONTROL DATA			
MONUMENT	Northing	Easting	ELEVATION
Benchmark # 46	200955.9	1573166	569.09
TRV PK # 52	199942.9	1573417	558.74
TRV PK # 53	198889.1	1573002	537.82
TRV PK # 202	199622	1573329	552.38
TRV PK # 203	200313.7	1573404	562.61
TRV PK # 404	200923.6	1573282	568.87
TRV MON # 1002	198404.6	1572163	614.56
TRV MON # 1003	198182.9	1572706	526.45
TRV MON # 1004	198928.2	1573070	538.93
TRV MON # 1005	199968.5	1573441	560.6
TRV MON # 1006	201153.4	1573103	573.82
TRV MON # 1009	202126.5	1572485	710.19
TRV MON # 1010	201834.4	1572317	659.75
TRV MON # 1011	198788.5	1571920	605.31

OP Unit One Groundwater Monitoring Wells Sampling Results 2003

DATE COLLECTED: SAMPLE ID:		OP UNIT ONE - NOVEMBER 19, 2003										
		MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-11	MW-12	MW-13	MW-14	MW-15
VOLATILE ORGANIC COMPOUNDS												
PARAMETERS UNITS												
Acetone	ug/L	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND
1,2-Dichloroethane (total)	ug/L	ND	ND	ND	ND	ND	ND	1100	ND	ND	ND	38
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	ND	ND	ND	1300	ND	ND	ND	3
Xylene (Total)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC COMPOUNDS												
PARAMETERS UNITS												
Di(2-Ethylhexyl) phthalate	ug/L	ND	ND	ND	ND	2	ND	2	ND	ND	ND	ND
Capro lactone	ug/L	ND	ND	ND	69	19	ND	8	ND	ND	ND	ND
Styrene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND
METALS												
PARAMETERS UNITS												
Aluminum	ug/L	1250	1250	6900	81600	1580	7870	17300	147	41.9	74	1830
Antimony	ug/L	ND	ND	ND	9.9	6.4	ND	ND	ND	ND	ND	ND
Arsenic	ug/L	ND	6.5	4.2	28.3	12.5	6.2	9.8	ND	ND	ND	ND
Barium	ug/L	33.3	14.2	50	989	73.2	66.1	37.7	18.1	17.2	23.2	66.8
Beryllium	ug/L	ND	ND	ND	3.8	ND	ND	0.6	ND	ND	ND	ND
Cadmium	ug/L	ND	ND	ND	ND	ND	1.1	ND	ND	5.8	1.1	ND
Calcium	ug/L	25000	48200	93900	78100	12300	61100	54200	125000	26700	34600	10400
Chromium	ug/L	772	7.9	51.4	181	5.1	151	47.4	ND	6.8	20.2	117
Cobalt	ug/L	4.8	3.7	7.5	21.9	13.7	11.4	23.4	ND	2.4	26.8	27.1
Copper	ug/L	29.4	6.5	25.9	193	12.8	43.4	53.4	ND	7.3	20.2	10.2
Iron	ug/L	5240	4210	14200	221000	19400	17100	39800	1770	44100	3350	4620
Lead	ug/L	3.1	2.8	3.7	121	4.6	16.4	12	ND	2.1	2.7	3.6
Magnesium	ug/L	16400	50300	71700	6000	71400	39300	68000	10100	15900	20300	24500
Manganese	ug/L	116	106	272	4820	6250	1680	1180	297	455	412	1280
Mercury	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND
Nickel	ug/L	270	14.7	32.2	22.5	32.2	174	84.4	ND	14.3	300	52.8
Potassium	ug/L	4410	7520	10600	33300	9620	10200	11200	9350	3840	4770	2870
Selenium	ug/L	2.5	2.4	ND	9.3	ND	ND	4.5	ND	ND	ND	ND
Silver	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	ug/L	26600	82200	16100	35700	69000	51500	72600	119000	25300	35100	10200
Thallium	ug/L	ND	10	ND	18.1	ND	12.3	30.9	ND	ND	ND	ND
Vanadium	ug/L	7	3.7	12.7	15.2	1	17.8	230	ND	ND	ND	4.7
Zinc	ug/L	23	34	61.4	540	32.9	94.9	27.3	1.8	70	127	13.5
Zincide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

Table 5

March 2003

OP Unit Two Groundwater Monitoring Wells Sampling Results 2003

DATE COLLECTED SAMPLE ID	OP UNIT TWO - JUNE 11, 2003								OP UNIT TWO - NOVEMBER 20, 2003							
	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1		MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	BG-1	
VOLATILE ORGANIC COMPOUNDS																
PARAMETERS	UNITS								UNITS							
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND	2	ND	ND	ND	NA	ND	ND	4	ND	ND
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Toluene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	2	ND	ND
Trichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	3	ND	ND
Xylene (Total)	ug/L	8	7	2	3	2	1	ND	ND	ND	NA	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC COMPOUNDS																
PARAMETERS	UNITS								UNITS							
bis(2-Ethylhexyl) phthalate	ug/L	9	2	50	ND	4	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Dichlorophthalate	ug/L	7	2	7	2	1	1	ND	NA	ND	NA	ND	1	ND	ND	ND
Naphthalene	ug/L	7	ND	5	2	2	1	ND	NA	ND	NA	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/L	1	ND	2	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
METALS																
PARAMETERS	UNITS								UNITS							
Aluminum	ug/L	16.6	4770	1490	795	690	1780	920	ND	46.1	NA	712	510	7370	100	100
Antimony	ug/L	ND	ND	ND	ND	5	4.8	ND	ND	ND	NA	ND	ND	ND	ND	ND
Arsenic	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Barium	ug/L	27.2	25.2	22.4	17.3	14.5	16.5	20.9	20.4	10.5	NA	18.9	14.7	29.7	12.1	12.1
Beryllium	ug/L	0.21	0.63	0.43	0.38	0.29	5.3	0.36	ND	ND	NA	ND	ND	0.3	ND	ND
Cadmium	ug/L	ND	0.74	ND	16.8	ND	ND	ND	ND	ND	NA	7.5	ND	ND	ND	ND
Calcium	ug/L	110000	478000	270000	97700	226000	478000	200700	148000	460000	NA	56200	259000	460000	173000	173000
Chromium	ug/L	ND	9.9	1.1	3.8	6.5	5.5	6	2.8	ND	NA	3.6	3	11.1	120	120
Cobalt	ug/L	2	115	1.8	20.5	133	1.3	5.3	2.4	36.6	NA	17.8	6.8	8.4	8.6	8.6
Copper	ug/L	ND	19.6	8.9	14.3	7	7.3	3.6	ND	4.1	NA	5.8	4	15.6	6.9	6.9
Iron	ug/L	1440	11600	2670	2130	2250	4020	2410	208	182	NA	820	1900	15200	168	168
Lead	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	3.5	NA	ND	ND	2.7	ND	ND
Manganese	ug/L	10000	68300	377000	112000	262000	70700	42800	118000	678000	NA	64700	281000	751000	38200	38200
Manganese	ug/L	877	11200	21.1	1550	85.5	61.8	704	1130	11300	NA	1030	273	227	802	802
Mercury	ug/L	ND	ND	ND	ND	ND	ND	ND	0.13	ND	NA	ND	0.12	ND	ND	ND
Nickel	ug/L	4.4	450	18.6	24.6	97	13.5	09.8	4.9	285	NA	51.8	88.9	26.8	40.3	40.3
Potassium	ug/L	12400	25600	6790	7740	4760	16600	2670	17100	28000	NA	5210	6790	20200	2300	2300
Selenium	ug/L	ND	ND	ND	ND	4.9	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Silver	ug/L	ND	ND	2.4	ND	ND	2	ND	ND	ND	NA	ND	ND	ND	ND	ND
Sodium	ug/L	88200	462000	332000	100000	282000	419000	55700	111000	514000	NA	63000	326000	160000	25100	25100
Thallium	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	8.5	NA	ND	ND	ND	ND	ND
Vanadium	ug/L	1.1	8.9	2.3	2.6	1.2	4.9	3.5	ND	ND	NA	ND	ND	13.5	ND	ND
Zinc	ug/L	7.8	127	34	14900	30.1	22	35.2	ND	60.7	NA	14400	12.8	16.2	63.9	63.9
Cyanide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA

Prepared by: [Signature]
 Date: 6/11/03

Table 6

March 2004

Quality Control Summary of Groundwater Monitoring Well Sampling Results 2003

DATE COLLECTED:		OP Unit Two June 11 2003			OP Unit One Nov 19 2003			OP Unit Two November 20 2003		
SAMPLE ID:		Dup	Trip	Equip	Dup	Trip		Equip	Trip	
VOLATILE ORGANIC COMPOUNDS		Sampl	Blank	Blank	Sampl	Blank		Blank	Blank	
PARAMETERS	UNITS									
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND		ND	ND	
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND		ND	ND	
1,2-Dichloroethene (total)	ug/L	ND	ND	ND	39	ND		ND	ND	
Toluene	ug/L	ND	ND	ND	ND	ND		ND	ND	
Trichloroethene	ug/L	ND	ND	ND	3	ND		ND	ND	
Xylene (Total)	ug/L	1	ND	ND	ND	ND		ND	ND	
SEMI-VOLATILE ORGANIC COMPOUNDS										
PARAMETERS	UNITS									
Caprolactam	ug/l	ND	ND	ND	ND	ND		ND	ND	
Naphthalene	ug/L	1	ND	ND	ND	ND		ND	ND	
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	ND		ND	ND	
METALS										
PARAMETERS	UNITS									
Aluminum	ug/L	878	NA	ND	167	NA		ND	NA	
Antimony	ug/L	ND	NA	ND	ND	NA		ND	NA	
Arsenic	ug/L	ND	NA	ND	ND	NA		ND	NA	
Barium	ug/L	13.9	NA	ND	28.4	NA		ND	NA	
Beryllium	ug/L	0.47	NA	ND	ND	NA		ND	NA	
Cadmium	ug/L	ND	NA	ND	ND	NA		ND	NA	
Calcium	ug/L	485000	NA	ND	10500	NA		44.9	NA	
Chromium	ug/L	3.2	NA	ND	10.8	NA		ND	NA	
Cobalt	ug/L	1.2	NA	ND	25.6	NA		ND	NA	
Copper	ug/L	7.8	NA	ND	3.3	NA		ND	NA	
Iron	ug/L	1930	NA	ND	519	NA		ND	NA	
Lead	ug/L	ND	NA	ND	ND	NA		ND	NA	
Magnesium	ug/L	683000	NA	ND	23900	NA		ND	NA	
Manganese	ug/L	106	NA	ND	1240	NA		ND	NA	
Mercury	ug/L	ND	NA	ND	0.14	NA		ND	NA	
Nickel	ug/L	18.3	NA	ND	43	NA		ND	NA	
Potassium	ug/L	14900	NA	ND	2380	NA		121	NA	
Selenium	ug/L	ND	NA	ND	ND	NA		ND	NA	
Silver	ug/L	1.5	NA	ND	ND	NA		ND	NA	
Sodium	ug/L	444000	NA	ND	10000	NA		324	NA	
Thallium	ug/L	ND	NA	ND	ND	NA		ND	NA	
Vanadium	ug/L	4	NA	ND	ND	NA		ND	NA	
Zinc	ug/L	23.9	NA	ND	98	NA		ND	NA	
Cyanide	ug/L	ND	NA	ND	ND	NA		ND	NA	

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

MW-00 is a dup of MW-30 on 6-19-02

MW-00 is a dup of MW-15 on 11-19-03

Prepared by E. J. Jaska
Checked by

Table 7


March 2004

OU-2 EXTRACTION WELLS TOTAL GALLONS 2003

Month ¹	MW-1 Meter Reading	MW-1 Gallons	MW-2 ² Meter Reading	MW-2 Gallons	MW-3 ² Meter Reading	MW-3 Gallons	MW-4 ³ Meter Reading	MW-4 Gallons
December	1347631.0		102377.0		201601.0		9090.0	
January	1351213.5	3,583	100.0	0	2751.1	0	9439.1	349
February	1354789.2	3,576	273.5	174	2778.3	27	9817.3	378
March	1358999.2	4,210	429.0	156	2801.5	23	10211.4	394
April	1363009.2	4,010	690.3	261	2830.8	29	10439.8	228
May	1366601.8	3,593	943.7	253	2849.7	19	10439.8	0
June	1370101.4	3,500	1138.1	194	2861.8	12	10911.5	472
July	1373143.8	3,042	1211.9	74	2897.7	36	11009.1	98
August	1375722.1	2,578	1405.6	194	2921.8	24	11009.1	0
September	1376291.1	569	1549.8	144	2950.9	29	11697.6	689
October	1376403.5	112	1670.9	121	2987.4	37	11924.8	227
November	1379879.2	3,476	1788.1	117	3013.0	26	12739.8	815
December	1384056.3	4,177	1908.2	120	3030.4	17	13628.5	889
Total Gallons		36,426		1,808		279		4,539

Notes:

- 1 The meter is read on the last day of each month, or on first working day after month end.
- 2 The meters of MW-2 and MW-3 were replaced in January 2003.
- 3 Toluene or other similar chemicals leaves residue in pump. Some down time occurred due to cleaning of pump in May and August.

Prepare by E Taylor
 Check By 

OU-1 NORTH TANK 2003


[illegible]

Total Gallons North Tank	22032.0
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OU-1 SOUTH TANK 2003

DATE	Dipstick Reading	Dipstick Reading	Pump Gallons
01/03/03	49 3/8	41 3/4	1068
01/06/03	52 3/8	42 3/4	1343
01/06/03	42 3/4	37 3/8	798
01/08/03	40 1/2	34 1/8	880
01/13/03	39 3/8	29 1/2	1341
01/22/03	33 1/2	24	1232
01/26/03	26 3/8	measurement only	
02/05/03	28 3/4	measurement only	
02/17/03	35 3/8	27 1/4	1076
02/19/03	54 1/8	47 1/4	953
02/21/03	55 3/4	46	1348
02/24/03	78	49	3517
03/03/03	69 3/4	45 1/8	3225
03/05/03	49 3/4	40	1364
03/07/03	41 1/2	33 3/8	1129
03/12/03	36 5/8	measurement only	
03/17/03	39 3/4	28 1/8	1572
03/24/03	39 3/8	measurement only	
03/31/03	45	36 3/8	1203
04/09/03	42 1/2	35 5/8	956
04/11/03	39 1/4	32 1/2	925
04/21/03	48 1/2	37 1/2	1012
04/30/03	53	measurement only	
05/02/03	55 1/4	47 1/8	1123
05/07/03	52 1/4	43 1/2	1221
05/12/03	49	40 1/4	1225
05/19/03	48 5/8	36 5/8	1676
05/28/03	43 7/8	35	1233
06/06/03	38 1/4	28 3/4	1282
06/17/03	34	measurement only	
06/27/03	39 7/8	measurement only	
07/07/03	43	measurement only	
07/16/03	43 1/4	37 1/8	854
07/23/03	41 5/8	28 1/2	1786
07/30/03	31 1/8	measurement only	
08/06/03	35 3/8	measurement only	
08/13/03	38 1/2	24 1/2	1856
08/18/03	26 1/8	measurement only	
09/10/03	47 3/8	measurement only	
09/17/03	50 1/4	41	1294
09/22/03	43 1/8	31 3/4	1568
10/01/03	36 7/8	23 1/4	1778
10/15/03	28 1/4	measurement only	
11/05/03	38	27 1/2	1410
11/20/03	49 1/2	39 1/2	1400
12/01/03	57 1/4	45 3/4	1655
12/03/03	47 1/2	38 1/4	1294
12/08/03	41 1/2	29 3/4	1639
12/18/03	48	35 1/2	1743
12/22/03	38 1/4	measurement only	
12/24/03	39	25	1864

Total Gallons South Tank	52843.0
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Prepare by E Taylor
Check by 

TABLES

Table 1: Summary of Treated Leachate Volume - Operable Units One and Two

	Plant Discharge Totals	OU-2 Extraction Wells Discharge Totals				OU-2 Leachate Collection Trench	OU-1 Tanks Discharge Totals		Monthly Rainfall
Month	Effluent	MW-1	MW-2	MW-3	MW-4	Estimated Discharge Totals	North Tank	South Tank	(Inches)
JAN	100,385		49	0	349	90,899	1,306	7,782	3.29
FEB	87,534	2,410	49	0	350	78,588	1,281	4,856	1.83
MAR	90,394	1,948	44	0	239	72,399	4,114	11,650	3.65
APR	138,066	2,241	5	9	266	130,859	0	4,686	5.94
MAY	96,953	1,070	79	8	174	87,888	3,517	4,217	7.57
JUN	100,729	69	25	10	117	96,018	0	4,490	7.39
JUL	73,969	73	32	4	150	71,923	0	1,787	5.60
AUG	85,218	0	28	4	95	81,899	1,564	1,628	6.42
SEP	73,657	0	28	9	174	73,446	0	0	0.75
OCT	95,018	0	47	46	115	93,075	0	1,735	7.60
NOV	98,393	0	124	9	231	89,976	1,537	6,516	7.95
DEC	111,815	334	79	12	69	105,144	0	6,177	6.15
TOTALS	1,152,131	8,145	589	111	2,329	1,072,114	13,319	55,524	64.14

NOTES:

All discharge volumes in gallons.

Table 2: Treatment Plant Quarterly Effluent Sampling Result

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	March 3/12/2004	June 6/3/2004	Sept 9/22/2004	Dec 12/15/2004
VOLATILE ORGANIC COMPOUNDS BY SW8260						
PARAMETERS	UNITS					
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<5	<5
VINYL CHLORIDE	ug/L	5	<5	<5	<5	<5
CHLOROMETHANE	ug/L		<5	<5	<5	<5
BROMOMETHANE	ug/L		<5	<5	<5	<5
CHLOROETHANE	ug/L		<5	<5	<5	<5
TRICHLOROFLUOROMETHANE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
METHYLENE CHLORIDE	ug/L		<5	<10	<10	<5
ACETONE	ug/L		<5	<25	<25	<25
ACROLEIN	ug/L		<5	<25	<25	<25
IODOMETHANE	ug/L		<5	<5	<5	<5
CARBON DISULFIDE	ug/L		<5	<5	<5	<5
ACRYLONITRILE	ug/L		<5	<5	<5	<5
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHANE	ug/L		<5	<5	<5	<5
VINYL ACETATE	ug/L		<5	<5	<5	<5
2-BUTANONE (MEK)	ug/L	5	<50	<5	<5	<5
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<5	<5
BROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
CHLOROFORM	ug/L		<5	<5	<5	<5
2,2-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
1,1,1-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,1-DICHLOROPROPYLENE	ug/L	5	12	<5	<5	<5
CARBON TETRACHLORIDE	ug/L		<5	<5	<5	<5
BENZENE	ug/L		<5	<5	<5	<5
1,2-DICHLOROETHANE	ug/L	5	<5	<5	<5	<5
TRICHLOROETHYLENE	ug/L		<5	<5	<5	<5
DIBROMOMETHANE	ug/L		<5	<5	<5	<5
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<5	<5
BROMODICHLOROMETHANE	ug/L		<5	<5	<5	<5
2-CHLOROETHYL VINYL ETHER	ug/L		<5	<5	<10	<10
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<5	<5
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	16	<25	<25	<25
TOLUENE	ug/L	5	<5	<5	<5	<5
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,3-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<5	<5
TETRACHLOROETHYLENE	ug/L		<5	<5	<5	<5
2-HEXANONE	ug/L		21	<25	<5	<5
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	<5	<5	<5
CHLOROBENZENE	ug/L		<5	<5	<5	<5
1-CHLOROHEXANE	ug/L		<5	<5	<5	<5
ETHYLBENZENE	ug/L		<5	<5	<5	<5
M-XYLENE / P-XYLENE	ug/L		<10	<10	<10	<10
O-XYLENE	ug/L		<5	<5	<5	<5
STYRENE	ug/L		<5	<5	<5	<5
BROMOFORM	ug/L		<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<5	<5
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<5	<5

Table 2: Treatment Plant Quarterly Effluent Sampling Results

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	MARCH 3/12/2004	JUNE 6/3/2004	SEPT 9/22/2004	DEC 12/15/2004
VOLATILE ORGANIC COMPOUNDS BY SW8260						
BROMOBENZENE ug/L			<5	<5	<5	<5
TRANS-1,4-DICHLORO-2-BUTENE ug/L			<5	<5	<5	<5
N-PROPYLBENZENE ug/L			<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE ug/L			<5	<5	<5	<5
2-CHLOROTOLUENE ug/L			<5	<5	<5	<5
3-CHLOROTOLUENE ug/L			<5	<5	<5	<5
4-CHLOROTOLUENE ug/L			<5	<5	<5	<5
1,3,5-TRIMETHYLBENZENE ug/L	23		<5	<5	<5	<5
TERT-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE ug/L			<5	<5	<5	<5
SEC-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,3-DICHLOROBENZENE ug/L			<5	<5	<5	<5
1,4-DICHLOROBENZENE ug/L			<5	<5	<5	<5
4-ISOPROPYLTOLUENE ug/L			<5	<5	<5	<5
1,2-DICHLOROBENZENE ug/L		5	<5	<5	<5	<5
N-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,2-DIBROMO-3-CHLOROPROPANE ug/L		5	<5	<5	<5	<5
1,2,4-TRICHLOROBENZENE ug/L			<5	<5	<5	<5
NAPHTHALENE ug/L			<5	<5	<5	<5
HEXACHLOROBUTADIENE ug/L			<5	<5	<5	<5
1,2,3-TRICHLOROBENZENE ug/L			<5	<5	<5	<5
DCA SURROGATE RECOVERY ug/L	4570	10	85%	80%	98%	96%
TOL-DB SURROGATE RECOVERY ug/L			87%	97%	113%	84%
BFB SURROGATE RECOVERY ug/L			87%	86%	107%	92%
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270						
PYRIDINE ug/L			ND	ND	<10	<10
N-NITROSODIMETHYLAMINE ug/L			ND	ND	<10	<10
BIS(2-CHLOROETHYL)ETHER ug/L			<20	<20	<10	<10
PHENOL ug/L			<10	<10	<10	<10
2-CHLOROPHENOL ug/L			<10	<10	<10	<10
1,3-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,4-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,2-DICHLOROBENZENE ug/L			<10	<10	<10	<10
BENZYL ALCOHOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER ug/L			<10	<10	<10	<10
2-METHYLPHENOL ug/L			<10	<10	<10	<10
HEXACHLOROETHANE ug/L			<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE ug/L	11		<20	<10	<10	<10
3&4-METHYLPHENOL ug/L			<10	<10	<10	<10
NITROBENZENE ug/L			<10	<10	<10	<10
ISOPHORONE ug/L			<10	<10	<10	<10
2-NITROPHENOL ug/L			<10	<10	<10	<10
2,4-DIMETHYLPHENOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHOXY)METHANE ug/L	250		<10	<10	<10	<10
2,4-DICHLOROPHENOL ug/L			<10	<10	<10	<10
2,6-DICHLOROPHENOL ug/L			<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE ug/L			<10	<10	<10	<10
NAPHTHALENE ug/L			<10	<10	<10	<10
4-CHLOROANILINE ug/L			<10	<10	<10	<10
HEXACHLOROBUTADIENE ug/L	365000	10	ND	<10	<10	<10
4-CHLORO-3-METHYLPHENOL ug/L			<10	<10	<10	<10

Table 2: Treatment Plant Quarterly Effluent Sampling Results

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	MARCH 3/12/2004	JUNE 6/3/2004	SEPT 9/22/2004	DEC 12/15/2004
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...						
2-METHYLNAPHTHALENE ug/L			<10	<10	<10	<10
HEXACHLOROCYCLOPENTADIENE ug/L			<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2-CHLORONAPHTHALENE ug/L			<10	<10	<10	<10
2-NITROANILINE ug/L			<50	<50	<50	<50
DIMETHYL PHTHALATE ug/L			<10	<10	<10	<10
ACENAPHTHYLENE ug/L	23		<10	<10	<10	<10
2,6-DINITROTOLUENE ug/L			<10	<10	<10	<10
ACENAPHTHENE ug/L			<10	<10	<10	<10
3-NITROANILINE ug/L			<50	<50	<50	<50
2,4-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROPHENOL ug/L			<10	<10	<10	<10
DIBENZOFURAN ug/L			<10	<10	<10	<10
2,4-DINITROTOLUENE ug/L		5	<10	<10	<10	<10
FLUORENE ug/L			<10	<10	<10	<10
DIETHYL PHTHALATE ug/L		5	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER ug/L			<10	<10	<10	<10
2-METHYL-4,6-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROANILINE ug/L			<50	<50	<50	<50
N-NITROSO-DIPHENYLAMINE ug/L			<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER ug/L	4570	10	<10	<10	<10	<10
HEXACHLOROBENZENE ug/L			<10	<10	<10	<10
PENTACHLOROPHENOL ug/L			<50	<10	<10	<10
ANTHRACENE ug/L			<10	<10	<10	<10
PHENANTHRENE ug/L			<10	<10	<10	<10
CARBAZOLE ug/L			<10	<10	<10	<10
DI-N-BUTYL PHTHALATE ug/L			<10	<10	<10	<10
FLUORANTHENE ug/L			<10	<10	<10	<10
BENZIDINE ug/L			<10	<10	<10	<10
PYRENE ug/L			<10	<10	<10	<10
BENZYL BUTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(A)ANTHRACENE ug/L			<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE ug/L			<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE ug/L			<10	<10	<10	<10
CHRYSENE ug/L			<10	<10	<10	<10
DI-N-OCTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(B)FLUORANTHENE ug/L			<10	<10	<10	<10
BENZO(K)FLUORANTHENE ug/L	11		<10	<10	<10	<10
BENZO(A)PYRENE ug/L			<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE ug/L			<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE ug/L			<10	<10	<10	<10
BENZO(G,H,I)PERYLENE ug/L			<10	<10	<10	<10
[Surrogate Rec. - B/N]						
NITROBENZENE-D5 ug/L	250		29%	74%	64%	68.00%
2-FLUOROBIPHENYL ug/L			64%	80%	64%	62.00%
P-TERPHENYL ug/L			130%	92%	112%	88.00%
[Surrogate Rec. - Acids]						
2-FLUOROPHENOL ug/L			30%	44%	30%	37.00%
PHENOL-D6 ug/L			16%	26%	38%	11.00%
2,4,6-TRIBROMOPHENOL ug/L	365000	10	69%	106%	80%	80.00%

Table 2: Treatment Plant Quarterly Effluent Sampling Results

SAMPLE MONTH DATE COLLECTED:	ROD Requirements	KPDES Requirements	MARCH 3/12/2004	JUNE 6/3/2004	SEPT 9/22/2004	DEC 12/15/2004
METALS Compound by SW846, 6010 / 7470						
PARAMETERS	UNITS					
Antimony	mg/L	0.062	1.6	<0.01	<0.01	<0.01
Arsenic	mg/L	0.011	0.05	<0.01	<0.01	<0.01
Barium	mg/L	0.231	0.075	0.06	0.05	0.08
Beryllium	mg/L		0.0053	<0.01	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.01	<0.01	<0.01
Calcium	mg/L		130	120	140	110
Chromium	mg/L	0.011	0.011	<0.01	<0.01	<0.01
Copper	mg/L		0.012	<0.01	<0.01	<0.01
Iron	mg/L		1	0.11	0.13	0.12
Lead	mg/L		0.0032	<0.01	<0.01	<0.01
Magnesium	mg/L		120	110	106	94.9
Manganese	mg/L		0.02	0.13	0.16	0.02
Mercury	mg/L		0.000012	<0.0002	<0.0002	<0.0002
Nickel	mg/L		0.16	<0.01	0.01	0.02
Selenium	mg/L		0.005	<0.05	<0.01	<0.01
Silver	mg/L		0.00012	<0.01	<0.01	<0.01
Thallium	mg/L	0.011	0.04	<0.01	<0.01	<0.01
Zinc	mg/L		0.11	0.02	0.02	0.04
GENERAL INORGANICS						
PARAMETERS	UNITS					
BOD	mg/L		<5	<5	<5	<5
COD	mg/L		23	21	22	<10
Cyanide total	mg/L		<0.01	<0.01	<0.01	<0.01
Nitrogen, Ammonia	mg/L		<1.0	<1.0	1	<1.0
Nitrogen, Kjeldahl	mg/L		2.3	2.4	2.6	1
Nitrogen, Nitrate	mg/L		<0.1	0.5	<0.5	1.36
Nitrogen, Nitrite	mg/L		0.66	0.5	<0.02	<0.1
Nitrogen, Nitrite, and Nitrate	mg/L		0.66	0.518	<0.05	2.05
Organic Carbon total	mg/L		15.7	23	12.2	16
pH	s.u.		7.5	7.61	7.7	7.9
Phosphate Ortho-	mg/L		<0.2	0.12	0.15	<0.3
Phosphorus total	mg/L		0.1	0.1	0.2	0.11
TDS	mg/L		1800	1340	1440	1200
TSS	mg/L		<5	<5	3	<5
Turbidity	NTU		0.46	0.37	0.5	0.7

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Table 3: Treatment Plant Semi-Annual Influent Sampling Results

SAMPLE MONTH:	ROD	KPOES	June	DEC	June	DEC	June	DEC
DATE COLLECTED:	Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003	6/3/2004	12/15/2004
VOLATILE ORGANIC COMPOUNDS BY SW8260								
PARAMETERS	UNITS							
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5
VINYL CHLORIDE	ug/L	5	<2	<2	<10	<2	<50	<5
CHLOROMETHANE	ug/L		<10	18	<50	<10	<50	<5
BROMOMETHANE	ug/L		<10	34	<50	<10	<50	<5
CHLOROETHANE	ug/L		<10	<10	<50	<10	<50	<5
TRICHLOROFLUOROMETHANE	ug/L		<5	<5	<25	<5	<50	7
1,1-DICHLOROETHYLENE	ug/L		<5	7	<25	<5	<50	14
METHYLENE CHLORIDE	ug/L		<10	924	800	640	1390	2930
ACETONE	ug/L		<50	4100	3040	4840	2130	6690
ACROLEIN	ug/L		<50	<50	<250	<50	<250	<25
IODOMETHANE	ug/L		<5	<5	<25	<5	<50	<5
CARBON DISULFIDE	ug/L		<10	16	<50	<10	<50	14
ACRYLONITRILE	ug/L		<50	<50	<250	<50	<50	<5
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<25	<5	<50	<5
1,1-DICHLOROETHANE	ug/L		<5	71	<80	48	68	148
VINYL ACETATE	ug/L		<50	<50	<250	<50	<50	<5
2-BUTANONE (MEK)	ug/L	5	<50	2070	1390	1480	883	4060
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<25	<5	<50	8
BROMOCHLOROMETHANE	ug/L		<5	8	<25	<5	<50	<5
CHLOROFORM	ug/L		<5	178	550	310	422	1230
2,2-DICHLOROPROPANE	ug/L		<5	<5	<25	<5	<50	<5
1,1,1-TRICHLOROETHANE	ug/L	5	<5	15	70	21	<50	43
1,1-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5	<50	<5
CARBON TETRACHLORIDE	ug/L		<5	<5	<25	<5	<50	<5
BENZENE	ug/L		<5	8	<25	<5	<50	14
1,2-DICHLOROETHANE	ug/L	5	<5	5	<25	<5	<50	<5
TRICHLOROETHYLENE	ug/L		<5	26	50	24	50	64
DIBROMOMETHANE	ug/L		<5	<5	<25	<5	<50	<5
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<25	<5	<50	<5
BROMODICHLOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5
2-CHLOROETHYL VINYL ETHER	ug/L		<10	140	<50	<10	ND	<5
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5	<50	<5
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	<50	604	<250	520	221	1050
TOLUENE	ug/L	5	<5	55	<50	39	<50	112
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<25	<5	<50	<5
1,1,2-TRICHLOROETHANE	ug/L	5	<5	178	140	99	160	500
1,3-DICHLOROPROPANE	ug/L		<5	<5	<25	<5	<50	<5
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<25	<5	<50	<5
TETRACHLOROETHYLENE	ug/L		<5	6	<25	7	<50	16
2-HEXANONE	ug/L		<10	<10	<50	17	<250	<5
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	8	100	9	100	28
CHLOROBENZENE	ug/L		<5	<5	<25	<5	<50	<5
1-CHLOROHEXANE	ug/L		<5	<5	<25	<5	<50	
ETHYLBENZENE	ug/L		<5	10	<25	<5	<50	14
M-XYLENE / P-XYLENE	ug/L		<10	43	<25	15	<100	38
O-XYLENE	ug/L		<5	11	<25	5	<50	14
STYRENE	ug/L		<5	<5	<25	<5	<50	<5
BROMOFORM	ug/L		<5	<5	<25	<5	<50	<5
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<25	<5	<50	<5
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<25	<5	<50	<5

Table 3: Treatment Plant Semi-Annual Influent Sampling Results

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	Dec 12/11/2002	June 6/13/2003	Dec 12/5/2003	June 6/3/2004	Dec 12/15/2004
VOLATILE ORGANIC COMPOUNDS BY SW8260								
BROMOBENZENE ug/L			<5	<5	<25	<5	<50	<5
TRANS-1,4-DICHLORO-2-BUTENE ug/L			<10	<10	<50	<10	<50	<5
N-PROPYLBENZENE ug/L			<5	<5	<25	<5	<50	<5
1,1,2,2-TETRACHLOROETHANE ug/L			<5	84	100	62	<50	238
2-CHLOROTOLUENE ug/L			<5	<5	<25	<5	<50	<5
3-CHLOROTOLUENE ug/L			<5	<5	<25	<5	<50	<5
4-CHLOROTOLUENE ug/L			<5	<5	<25	<5	<50	<5
1,3,5-TRIMETHYLBENZENE ug/L	23		<5	<5	<25	<5	<50	<5
TERT-BUTYLBENZENE ug/L			<5	<5	<25	<5	<50	<5
1,2,4-TRIMETHYLBENZENE ug/L			<5	<5	<25	<5	<50	<5
SEC-BUTYLBENZENE ug/L			<5	<5	<25	<5	<50	<5
1,3-DICHLOROBENZENE ug/L			<5	<5	<25	<5	<50	<5
1,4-DICHLOROBENZENE ug/L			<5	<5	<25	<5	<50	<5
4-ISOPROPYLTOLUENE ug/L			<5	<5	<25	<5	<50	<5
1,2-DICHLOROBENZENE ug/L		5	<5	<5	<25	<5	<50	<5
N-BUTYLBENZENE ug/L			<5	<5	<25	<5	<50	<5
1,2-DIBROMO-3-CHLOROPROPANE ug/L		5	<5	<5	<25	<5	<50	<5
1,2,4-TRICHLOROBENZENE ug/L			<5	<5	<25	<5	<50	<5
NAPHTHALENE ug/L			<5	<5	<25	<5	<50	<5
HEXACHLOROBUTADIENE ug/L			<5	<5	<25	<5	<50	<5
1,2,3-TRICHLOROBENZENE ug/L			<25	<5	<25	<5	<50	<5
DCA SURROGATE RECOVERY %	4570	10	102%	90	102%	95%	95%	93%
TOL-08 SURROGATE RECOVERY %			93%	95	93%	92%	98%	82%
BFB SURROGATE RECOVERY %			105%	100	105%	95%	87%	91%
DBFM SURROGATE RECOVERY %							87	92%
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270								
PYRIDINE ug/L			<10	<10	<10	<10	<10	<10
N-NITROSODIMETHYLAMINE ug/L			<10	<10	<10	<10	<10	<10
BIS(2-CHLOROETHYL)ETHER ug/L			<10	<10	<10	<10	<10	<10
PHENOL ug/L			<10	400	320	400	140	100
2-CHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10
1,3-DICHLOROBENZENE ug/L			<10	<10	<10	<10	<10	<10
1,4-DICHLOROBENZENE ug/L			<10	<10	<10	<10	<10	<10
1,2-DICHLOROBENZENE ug/L			<10	<10	<10	<10	<10	<10
BENZYL ALCOHOL ug/L			<10	<10	<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER ug/L			<10	<10	<10	<10	<10	<10
2-METHYLPHENOL ug/L			<10	<10	<10	<10	50	<10
HEXACHLOROETHANE ug/L			<10	<10	<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE ug/L	11		<10	<10	<10	<10	<10	<10
3,4-METHYLPHENOL ug/L			<10	120	150	120	60	115
NITROBENZENE ug/L			<10	<10	<10	<10	<10	<10
ISOPHORONE ug/L			<10	60	580	60	60	136
2-NITROPHENOL ug/L			<10	<10	<10	<10	<10	<10
2,4-DIMETHYLPHENOL ug/L			<10	<10	<10	<10	<10	<10
BIS(2-CHLOROETHOXY)METHANE ug/L	250		<10	<10	<10	<10	<10	<10
2,4-DICHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10
2,6-DICHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE ug/L			<10	<10	<10	<10	<10	<10
NAPHTHALENE ug/L			<10	<10	<10	<10	<10	<10
4-CHLOROANILINE ug/L			<10	<10	<10	<10	<10	<10
HEXACHLOROBUTADIENE ug/L	365000	10	<10	<10	<10	<10	<10	<10
4-CHLORO-3-METHYLPHENOL ug/L			<10	<10	<10	<10	<10	<10

Table 3: Treatment Plant Semi-Annual Influent Sampling Results

SAMPLE MONTH:	ROD	KPDES	June	Dec	June	Dec	June	Dec
DATE COLLECTED:	Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003	6/3/2004	12/15/2004
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...								
2-METHYLNAPHTHALENE	ug/L		<10	<10	<10	<10	<10	<10
HEXACHLOROCYCLOPENTADIENE	ug/L		<10	<10	<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
2-CHLORONAPHTHALENE	ug/L		<10	<10	<10	<10	<10	<10
2-NITROANILINE	ug/L		<50	<50	<50	<50	<10	<10
DIMETHYL PHTHALATE	ug/L		<10	<10	<10	<10	<10	<10
ACENAPHTHYLENE	ug/L	23	<10	<10	<10	<10	<10	<10
2,6-DINITROTOLUENE	ug/L		<10	<10	<10	<10	<10	<10
ACENAPHTHENE	ug/L		<10	<10	<10	<10	<10	<10
3-NITROANILINE	ug/L		<50	<50	<50	<50	<10	<10
2,4-DINITROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
4-NITROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
DIBENZOFURAN	ug/L		<10	<10	<10	<10	<10	<10
2,4-DINITROTOLUENE	ug/L	5	<10	<10	<10	<10	<10	<10
FLUORENE	ug/L		<10	<10	<10	<10	<10	<10
DIETHYL PHTHALATE	ug/L	5	<10	<10	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER	ug/L		<10	<10	<10	<10	<10	<10
2-METHYL-4,6-DINITROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
4-NITROANILINE	ug/L		<50	<50	<50	<50	<10	<10
N-NITROSO-DIPHENYLAMINE	ug/L		<10	<10	<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER	ug/L	4570	<10	<10	<10	<10	<10	<10
HEXACHLORO BENZENE	ug/L		<10	<10	<10	<10	<10	<10
PENTACHLOROPHENOL	ug/L		<10	<10	<10	<10	<10	<10
ANTHRACENE	ug/L		<10	<10	<10	<10	<10	<10
PHENANTHRENE	ug/L		<10	<10	<10	<10	<10	<10
CARBAZOLE	ug/L		<10	<10	<10	<10	<10	<10
DI-N-BUTYL PHTHALATE	ug/L		<10	<10	<10	<10	<10	<10
FLUORANTHENE	ug/L		<10	<10	<10	<10	<10	<10
BENZIDINE	ug/L		<10	<10	<10	<10	<10	<10
PYRENE	ug/L		<10	<10	<10	<10	<10	<10
BENZYL BUTYL PHTHALATE	ug/L		<10	<10	<10	<10	<10	<10
BENZO(A)ANTHRACENE	ug/L		<10	<10	<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE	ug/L		<10	<10	<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE	ug/L		<10	<10	<10	<10	<10	<10
CHRYSENE	ug/L		<10	<10	<10	<10	<10	<10
DI-N-OCTYL PHTHALATE	ug/L		<10	<10	<10	<10	<10	<10
BENZO(B)FLUORANTHENE	ug/L		<10	<10	<10	<10	<10	<10
BENZO(K)FLUORANTHENE	ug/L	11	<10	<10	<10	<10	<10	<10
BENZO(A)PYRENE	ug/L		<10	<10	<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE	ug/L		<10	<10	<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE	ug/L		<10	<10	<10	<10	<10	<10
BENZO(G,H,I)PERYLENE	ug/L		<10	<10	<10	<10	<10	<10
[Surrogate Rec. - B/N]	ug/L							
NITROBENZENE-D5	ug/L	250	105	81	26	81	68%	38%
2-FLUOROBIPHENYL	ug/L		85	102	23	102	76%	31%
P-TERPHENYL	ug/L		107	85	37	85	93%	112%
[Surrogate Rec. - Acids]	ug/L							
2-FLUOROPHENOL	ug/L		68	49	12	49	45%	114%
PHENOL-D6	ug/L		44	39	17	39	0%	1%
2,4,6-TRIBROMOPHENOL	ug/L	365000	61	97	40	97	104%	96%

Table 3: Treatment Plant Semi-Annual Influent Sampling Results

SAMPLE MONTH:		ROD	KPDES	June	Dec	June	Dec	June	Dec
DATE COLLECTED:		Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003	6/3/2004	12/15/2004
METALS Compound by SW846, 6010 / 7470									
PARAMETERS		UNITS							
Antimony	mg/L	0.062	1.6	<0.1	<0.01	<0.1	<0.01	<0.05	<0.05
Arsenic	mg/L	0.011	0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.02
Barium	mg/L	0.231		0.1	0.19	0.12	0.09	0.12	0.8
Beryllium	mg/L		0.0053	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.1	<0.01	<0.1	<0.01	<0.05	<0.01
Calcium	mg/L			100	120	110	110	124	127
Chromium	mg/L	0.011	0.011	<0.1	<0.01	<0.1	<0.01	<0.05	<0.01
Copper	mg/L		0.012	0.6	<0.01	<0.01	<0.01	<0.05	<0.02
Iron	mg/L		1	4.3	8	5.98	9.18	7.5	51.6
Lead	mg/L		0.0032	<0.1	<0.01	<0.1	<0.01	<0.05	<0.02
Magnesium	mg/L			89	92	120	96.7	119	110
Manganese	mg/L			1.8	1.51	1.69	1.4	1.71	1.57
Mercury	mg/L		0.000012	0.0001	<0.0002	0.0001	<0.0002	0.0002	<0.0002
Nickel	mg/L		0.16	<0.1	0.02	0.03	0.03	0.03	0.09
Selenium	mg/L		0.005	<0.1	<0.01	<0.1	<0.01	<0.05	<0.05
Silver	mg/L		0.00012	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01
Thallium	mg/L	0.011	0.04	<0.1	<0.01	<0.1	<0.01	<0.05	<0.05
Zinc	mg/L		0.11	<0.1	0.02	0.05	0.03	<0.05	0.14
GENERAL INORGANICS									
PARAMETERS		UNITS							
BOD	mg/L			123	111	81	47	104	220
COD	mg/L			254	290	197	120	254	340
Cyanide total	mg/L			0.01	<0.01	0.01	0.04	<0.01	<0.01
Nitrogen, Ammonia	mg/L			9	8	6.9	6	4	5.9
Nitrogen, Kjeldahl	mg/L			9	10	7.9	6	6.4	7.6
Nitrogen, Nitrate	mg/L			0.55	<0.5	<0.5	<0.01	0.4	0.41
Nitrogen, Nitrite	mg/L			<0.05	<0.05	0.007	<0.01	<0.15	0.6
Nitrogen, Nitrite, and Nitrate	mg/L			0.55	0.5	0.007	<0.01	0.4	<1.0
Organic Carbon total	mg/L			120	55	49.3	42	75.9	166.2
PH	s.u.			6.8	7.82	6.67	7	6.6	7.4
Phosphate Ortho-	mg/L			<0.1	<0.1	0.1	<0.3	<0.2	<0.64
Phosphorus total	mg/L			<1	0.1	<0.1	0.09	<0.1	0.3
TDS	mg/L			1290	1300	1310	1424	1480	1500
TSS	mg/L			42	10	11	10	29	<5
Turbidity	NTU			54	300	100	36.6	5.1	2.8

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Table 4: Summary of Settlement Monuments and Elevations

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT ONE			
MONUMENT	2003 ELEV	2004 ELEV	CHANGE
SM-01	613.65	613.65	0.00
SM-02	619.27	619.29	-0.02
SM-03	624.69	624.71	-0.02
SM-04	625.35	625.37	-0.02
SM-05	630.63	630.70	-0.07
SM-06	634.04	634.10	-0.06
SM-07	644.59	644.66	-0.07
SM-08	639.47	639.52	-0.05
SM-09	636.89	636.95	-0.06
SM-10	634.21	634.25	-0.04
SM-11	628.45	628.46	-0.01
SM-12	614.13	614.14	-0.01
SM-13	MISSING	0.00	N/A
SM-14	616.78	616.78	0.00
SM-15	631.04	631.05	-0.01
SM-16	638.39	638.44	-0.05
SM-17	644.54	644.60	-0.06
SM-18	652.41	652.47	-0.06
SM-19	659.62	659.66	-0.06
SM-20	666.78	666.82	-0.04
SM-21	664.11	664.14	-0.03
SM-22	652.14	652.19	-0.05
SM-23	628.85	628.87	-0.02

SMITH FARM LANDFILL SETTLEMENT SUMMARY OPERABLE UNIT ONE			
MONUMENT	2003 ELEV.	2004 ELEV	CHANGE
SM-24	640.91	640.97	-0.06
SM-25	616.37	616.39	-0.02
SM-26	601.22	601.22	0.00
SM-27	601.21	601.20	0.01
SM-28	612.63	612.67	-0.04
SM-29	626.88	626.87	0.01
SM-30	644.67	644.71	-0.04
SM-31	661.55	661.59	-0.04
SM-32	674.35	674.37	-0.02
SM-33	673.25	673.29	-0.04
SM-34	652.12	652.15	-0.03
SM-35	633.65	633.69	-0.04
SM-36	612.11	612.14	-0.03
SM-37	599.85	599.88	-0.03
SM-38	619.88	619.94	-0.06
SM-39	641.37	641.42	-0.05
SM-40	663.96	664.00	-0.04
SM-41	675.22	675.26	-0.04
SM-42	687.52	687.56	-0.04
SM-43	662.40	662.42	-0.02
SM-44	660.19	660.23	-0.04
SM-45	650.63	650.68	-0.05

Table 5: Op Unit Two Groundwater Monitoring Wells Sampling Results

DATE COLLECTED SAMPLE ID	OP UNIT TWO - JUNE 17, 2004							OP UNIT TWO - DECEMBER 8, 2004						
	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	EG-1	MW-25	MW-26	MW-27	MW-28	MW-29	MW-30	EG-1
VOLATILE ORGANIC COMPOUNDS														
PARAMETERS	UNITS							UNITS						
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND	4	ND	ND	NA	ND	ND	4	ND
1,1,1-Trichloroethane	ug/L	ND	ND	ND	ND	ND	1	ND	ND	NA	ND	ND	ND	ND
1,2-Dichloroethane (total)	ug/L	ND	ND	ND	ND	ND	2	ND	ND	NA	ND	ND	4	ND
Toluene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	2	ND
Trichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	1	ND
Xylene (Total)	ug/L	ND	ND	ND	ND	ND	3	ND	ND	NA	ND	ND	5	ND
SEMI-VOLATILE ORGANIC COMPOUNDS														
PARAMETERS	UNITS							UNITS						
2,4-Dibromophenylphthalate	ug/L	ND	2	30	ND	8	ND	ND	ND	NA	ND	ND	ND	ND
Dibenzophthalate	ug/L	19	2	ND	1	3	ND	2	NA	ND	ND	1	ND	ND
Naphthalene	ug/L	5	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
METALS														
PARAMETERS	UNITS							UNITS						
Aluminum	ug/L	56	2630	3500	1740	30.8	39.9	3500	98.4	2360	NA	11800	93.5	464
Antimony	ug/L	2.7	2.9	2.9	2.9	2.9	2.9	2.9	4.6	4.6	NA	4.6	4.6	4.6
Arsenic	ug/L	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.7	5.7	NA	6	5.7	5.7
Barium	ug/L	18.3	17.7	30.6	26.7	10.5	9.1	25.3	18.8	17.7	NA	69.2	10.6	11.2
Beryllium	ug/L	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.39	NA	1.1	0.28	0.31
Cadmium	ug/L	0.64	0.64	0.64	30.5	0.64	0.64	0.64	0.56	0.56	NA	11.8	0.56	0.56
Calcium	ug/L	16800	44900	20500	96900	19700	43700	1790	11700	44100	NA	57700	32000	42500
Chromium	ug/L	2.5	9	9.1	4.3	8.2	2.5	8.9	1.4	4.7	NA	62.8	1.3	3.3
Cobalt	ug/L	1.4	110	5.5	5.6	1.4	1.4	9.8	2.4	42.7	NA	14.9	4.5	2.4
Copper	ug/L	1.7	9.9	12.4	4.4	2	1.1	6.3	2.1	2.1	NA	19.3	2.1	2.1
Iron	ug/L	106	3880	78300	22	36.1	36.1	5850	233	4910	NA	20600	217	514
Lead	ug/L	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.9	2.9	NA	9	2.9	2.9
Magnesium	ug/L	97000	260000	298000	16000	23200	727000	3990	74900	667000	NA	6400	25600	71800
Manganese	ug/L	777	12400	94.8	703	11.1	0.13	0.45	733	1050	NA	563	244	0.15
Mercury	ug/L	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.074	0.074	NA	0.074	0.074	0.074
Nickel	ug/L	4.6	431	23.4	47.8	16.5	3.4	65.8	7.7	7.7	NA	91.8	69.2	4.2
Potassium	ug/L	13400	28700	7320	7150	3770	18900	3480	12300	29600	NA	7700	6220	17300
Selenium	ug/L	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.7	4.7	NA	4.7	4.7	4.7
Silver	ug/L	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.9	2	NA	2.6	1.9	2.5
Sodium	ug/L	83000	482000	313000	80800	25500	410000	53600	70900	50300	NA	57300	29400	41000
Thallium	ug/L	3.8	3.8	3.8	2.9	3.8	3.8	3.8	8.5	8.5	NA	8.5	8.5	8.5
Vanadium	ug/L	2.2	3.6	6	4.5	2.2	2.2	6.3	1.6	4.8	NA	25.6	1.6	1.6
Zinc	ug/L	1.4	28.8	1.4	1100	1.4	7	48.6	1.8	11.4	NA	3860	1.8	9
Cyanide	ug/L	4	4	NA	4	4	4	4	4	4	NA	4	4	4

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analyses by Lancaster 1, Thornton in Lancaster, PA

Table 6: Summary of Groundwater Monitoring Well Sampling Quality Control Results

DATE COLLECTED:		OP Unit Two June, 17 2004			OP Unit One Nov 30 2004		OP Unit Two December 8 2004	
SAMPLE ID:		Dup	Trip	Equip	Dup	Trip	Equip	Trip
VOLATILE ORGANIC COMPOUNDS		Sampl	Blank	Blank	Sampl	Blank	Blank	Blank
PARAMETERS	UNITS							
1,1-Dichloroethane	ug/L	4	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	ug/L	2	ND	ND	39	ND	ND	ND
Toluene	ug/L	1	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	3	ND	ND	3	ND	ND	ND
Xylene (Total)	ug/L	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC COMPOUNDS								
PARAMETERS	UNITS							
Caprolactam	ug/L	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ug/L	1	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ug/L	ND	ND	ND	ND	ND	ND	ND
METALS								
PARAMETERS	UNITS							
Aluminum	ug/L	2820	NA	30	862	NA	61.4	NA
Antimony	ug/L	2.9	NA	2.9	13.7	NA	4.6	NA
Arsenic	ug/L	4.6	NA	4.6	9.9	NA	5.7	NA
Barium	ug/L	18.6	NA	5.7	28.4	NA	0.18	NA
Beryllium	ug/L	0.28	NA	0.28	39.6	NA	0.28	NA
Cadmium	ug/L	0.64	NA	0.64	0.2	NA	0.56	NA
Calcium	ug/L	44700	NA	393	0.57	NA	42.1	NA
Chromium	ug/L	5	NA	2.5	7850	NA	1.3	NA
Cobalt	ug/L	3.1	NA	1.4	108	NA	2.4	NA
Copper	ug/L	2.7	NA	4.9	26	NA	2.1	NA
Iron	ug/L	3230	NA	43.5	7.1	NA	28.5	NA
Lead	ug/L	2.4	NA	2.4	2530	NA	2.9	NA
Magnesium	ug/L	73500	NA	41.3	2.6	NA	30.6	NA
Manganese	ug/L	24.1	NA	7.4	22300	NA	0.27	NA
Mercury	ug/L	0.042	NA	0.042	1350	NA	0.074	NA
Nickel	ug/L	8.4	NA	2.6	1074	NA	2.9	NA
Potassium	ug/L	18700	NA	150	128	NA	46.4	NA
Selenium	ug/L	4.1	NA	4.1	2700	NA	4.7	NA
Silver	ug/L	1.1	NA	1.1	4.7	NA	2.3	NA
Sodium	ug/L	44900	NA	377	304	NA	250	NA
Thallium	ug/L	3.8	NA	3.8	98200	NA	8.5	NA
Vanadium	ug/L	4.7	NA	2.2	7.4	NA	1.6	NA
Zinc	ug/L	7	NA	9.1	2.7	NA	10.9	NA
Cyanide	ug/L	4	NA	4	90.6	NA	4	NA

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analyses by Lancaster Laboratories in Lancaster, PA.

OU-2 MW-00 is a dup of MW-30 on 6-17-04

OU-1 MW-00 is a dup of MW-15 on 11-30-04

Table 7: Summary of Volumes Pumped from Op Unit Two Extraction Wells

	MW-1 Meter Reading	MW-1 Gallons	MW-2 Meter Reading	MW-2 Gallons	MW-3 Meter Reading	MW-3 Gallons	MW-4 Meter Reading	MW-4 Gallons
January	1384056.3		1908.2	49	3030.4	0	13628.5	349
February	1386466.2	2,410	1957.0	49	3030.4	0	13978.8	350
March	1388414.6	1,948	2001.2	44	3030.4	0	14217.6	239
April	1390656.0	2,241	2006.0	5	3039.7	9	14483.9	266
May	1391726.1	1,070	2084.6	79	3048.1	8	14658.0	174
June	1391794.9	69	2109.1	25	3057.8	10	14775.1	117
July	1391868.2	73	2141.5	32	3061.3	4	14925.3	150
August	1391868.2	0	2169.1	28	3065.4	4	15019.9	95
September	1391868.2	0	2197.0	28	3074.1	9	15194.0	174
October	1391868.3	0	2243.9	47	3120.0	46	15308.8	115
November	1391868.3	0	2367.8	124	3129.1	9	15539.5	231
December	1392202.2	334	2447.1	79	3140.8	12	15608.8	69
Total Gallons		8,145		589		111		2,329

[illegible]

Total Gallons North Tank	13.319
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[illegible]

Total Gallons South Tank	: 55,524
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TABLES

Table 1: Summary of Treated Leachate Volume - Operable Units One and Two

	Plant Discharge Totals	OU-2 Extraction Wells Discharge Totals				OU-2 Leachate Collection Trench	OU-1 Tanks Discharge Totals		Monthly Rainfall
Month	Effluent	MW-1	MW-2	MW-3	MW-4	Estimated Discharge Totals	North Tank	South Tank	Inches
JAN	101462	665	14	0	211	79455	6136	14981	4.6
FEB	95528	0	0	0	0	86814	1618	7096	3.36
MAR	79239	0	0	0	0	74085	1467	3686	2.41
APR	111043	0	0	0	0	102589	3344	5110	4.88
MAY	85489	1349	65	0	377.6	79676.4	0	4021	3.91
JUN	76692	1017	85	0	301	73845	1644	0	2.25
JUL	48643	887	59	0	246	47451	0	0	5.05
AUG	47533	684	76	0	179	42870	0	3724	1.49
SEP	82388	542.6	73	0	151	81621.4	0	0	7.27
OCT	59411	573	80	0	289	56631	0	1838	1.71
NOV	52915	742	89	0	412	51672	0	0	1.87
DEC	69604	1231	121	0	603	62060	1620	3969	1.9
TOTALS	909947	7690.6	662	0	2769.6	838570.8	15829	44425	40.7

NOTES:

All discharge volumes in gallons.

Prepared by: E Taylor
 Checked by: H Poteet

Table 2: Treatment Plant Quarterly Effluent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	March 3/4/2005	June 6/24/2005	Sept 9/9/2005	Jan 1/4/2006
VOLATILE ORGANIC COMPOUNDS BY SW8260						
PARAMETERS	UNITS					
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<5	<5
VINYL CHLORIDE	ug/L	5	<5	<5	<5	<5
CHLOROMETHANE	ug/L		<5	<5	<5	<5
BROMOMETHANE	ug/L		<5	<5	<5	<5
CHLOROETHANE	ug/L		<5	<5	<5	<5
TRICHLOROFUOROMETHANE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
METHYLENE CHLORIDE	ug/L		<10	<10	<10	<10
ACETONE	ug/L		<25	66	310	<25
ACROLEIN	ug/L		<25	<25	<25	<25
IODOMETHANE	ug/L		<5	<5	<5	<5
CARBON DISULFIDE	ug/L		<5	<5	<5	<5
ACRYLONITRILE	ug/L		<5	<5	<5	<5
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<5	<5
1,1-DICHLOROETHANE	ug/L		<5	<5	<5	<5
VINYL ACETATE	ug/L		<5	<5	<5	<5
2-BUTANONE (MEK)	ug/L	5	<25	<5	560	<25
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<5	<5
BROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
CHLOROFORM	ug/L		<5	<5	<5	<5
2,2-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
1,1,1-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,1-DICHLOROPROPYLENE	ug/L	5	<5	<5	<5	<5
CARBON TETRACHLORIDE	ug/L		<5	<5	<5	<5
BENZENE	ug/L		<5	<5	<5	<5
1,2-DICHLOROETHANE	ug/L	5	<5	<5	<5	<5
TRICHLOROETHYLENE	ug/L		<5	<5	<5	<5
DIBROMOMETHANE	ug/L		<5	<5	<5	<5
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<5	<5
BROMODICHLOROMETHANE	ug/L		<5	<5	<5	<5
2-CHLOROETHYL VINYL ETHER	ug/L		<5	<5	<5	<5
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<5	<5
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	<25	<25	<25	<25
TOLUENE	ug/L	5	<5	<5	<5	<5
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	ug/L	5	<5	<5	<5	<5
1,3-DICHLOROPROPANE	ug/L		<5	<5	<5	<5
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<5	<5
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<5	<5
TETRACHLOROETHYLENE	ug/L		<5	<5	<5	<5
2-HEXANONE	ug/L		21	<25	<5	<25
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	<5	<5	<5
CHLOROBENZENE	ug/L		<5	<5	<5	<5
1-CHLOROHEXANE	ug/L		<5	<5	<5	<5
ETHYLBENZENE	ug/L		<5	<5	14	<5
M-XYLENE / P-XYLENE	ug/L		<10	<10	<10	<10
O-XYLENE	ug/L		<5	<5	<5	<5
STYRENE	ug/L		<5	<5	<5	<5
BROMOFORM	ug/L		<5	<5	<5	<5
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<5	<5
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<5	<5

Table 2: Treatment Plant Quarterly Effluent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	March 3/4/2005	June 6/24/2005	Sept 9/9/2005	Jan 1/4/2006
VOLATILE ORGANIC COMPOUNDS BY SW8260 continued...						
BROMOBENZENE ug/L			<5	<5	<5	<5
TRANS-1,4-DICHLORO-2-BUTENE ug/L			<5	<5	<5	<5
N-PROPYLBENZENE ug/L			<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE ug/L			<5	<5	<5	<5
2-CHLOROTOLUENE ug/L			<5	<5	<5	<5
3-CHLOROTOLUENE ug/L			<5	<5	<5	<5
4-CHLOROTOLUENE ug/L			<5	<5	<5	<5
1,3,5-TRIMETHYLBENZENE ug/L	23		<5	<5	<5	<5
TERT-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,2,4-TRIMETHYLBENZENE ug/L			<5	<5	<5	<5
SEC-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,3-DICHLOROBENZENE ug/L			<5	<5	<5	<5
1,4-DICHLOROBENZENE ug/L			<5	<5	<5	<5
4-ISOPROPYLTOLUENE ug/L			<5	<5	<5	<5
1,2-DICHLOROBENZENE ug/L		5	<5	<5	<5	<5
N-BUTYLBENZENE ug/L			<5	<5	<5	<5
1,2-DIBROMO-3-CHLOROPROPANE ug/L		5	<5	<5	<5	<5
1,2,4-TRICHLOROBENZENE ug/L			<5	<5	<5	<5
NAPHTHALENE ug/L			<5	11	<5	<5
HEXACHLOROBUTADIENE ug/L			<5	<5	<5	<5
1,2,3-TRICHLOROBENZENE ug/L			<5	9	<5	<5
DCA SURROGATE RECOVERY ug/L	4570	10	95%	89%	130%	116%
TOL-D8 SURROGATE RECOVERY ug/L			106%	94%	91%	99%
BFB SURROGATE RECOVERY ug/L			100%	102%	100%	106%
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270						
PYRIDINE ug/L			<10	<10	<10	<10
N-NITROSODIMETHYLAMINE ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHYL)ETHER ug/L			<10	<10	<10	<10
PHENOL ug/L			<10	<10	<10	<10
2-CHLOROPHENOL ug/L			<10	<10	<10	<10
1,3-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,4-DICHLOROBENZENE ug/L			<10	<10	<10	<10
1,2-DICHLOROBENZENE ug/L			<10	<10	<10	<10
BENZYL ALCOHOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER ug/L			<10	<10	<10	<10
2-METHYLPHENOL ug/L			<10	<10	<10	<10
HEXACHLOROETHANE ug/L			<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE ug/L	11		<10	<10	<10	<10
3&4-METHYLPHENOL ug/L			<10	<10	<10	<10
NITROBENZENE ug/L			<10	<10	<10	<10
ISOPHORONE ug/L			<10	<10	<10	<10
2-NITROPHENOL ug/L			<10	<10	<10	<10
2,4-DIMETHYLPHENOL ug/L			<10	<10	<10	<10
BIS(2-CHLOROETHOXY)METHANE ug/L	250		<10	<10	<10	<10
2,4-DICHLOROPHENOL ug/L			<10	<10	<10	<10
2,6-DICHLOROPHENOL ug/L			<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE ug/L			<10	<10	<10	<10
NAPHTHALENE ug/L			<10	<10	<10	<10
4-CHLOROANILINE ug/L			<10	<10	<10	<10
HEXACHLOROBUTADIENE ug/L	365000	10	<10	<10	<10	<10
4-CHLORO-3-METHYLPHENOL ug/L			<10	<10	<10	<10
2-METHYLNAPHTHALENE ug/L			<10	<10	<10	<10

Table 2: Treatment Plant Quarterly Effluent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	March 3/4/2005	June 6/24/2005	Sept 9/9/2005	Jan 1/4/2006
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270 continued...						
HEXACHLOROCYCLOPENTADIENE ug/L			<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL ug/L			<10	<10	<10	<10
2-CHLORONAPHTHALENE ug/L			<10	<10	<10	<10
2-NITROANILINE ug/L			<10	<10	<50	<50
DIMETHYL PHTHALATE ug/L			<10	<10	<10	<10
ACENAPHTHYLENE ug/L	23		<10	<10	<10	<10
2,6-DINITROTOLUENE ug/L			<10	<10	<10	<10
ACENAPHTHENE ug/L			<10	<10	<10	<10
3-NITROANILINE ug/L			<10	<10	<50	<50
2,4-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROPHENOL ug/L			<10	<10	<10	<10
DIBENZOFURAN ug/L			<10	<10	<10	<10
2,4-DINITROTOLUENE ug/L		5	<10	<10	<10	<10
FLUORENE ug/L			<10	<10	<10	<10
DIETHYL PHTHALATE ug/L		5	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER ug/L			<10	<10	<10	<10
2-METHYL-4,6-DINITROPHENOL ug/L			<10	<10	<10	<10
4-NITROANILINE ug/L			<10	<10	<50	<50
N-NITROSO-DIPHENYLAMINE ug/L			<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER ug/L	4570	10	<10	<10	<10	<10
HEXACHLOROBENZENE ug/L			<10	<10	<10	<10
PENTACHLOROPHENOL ug/L			<10	<10	<10	<10
ANTHRACENE ug/L			<10	<10	<10	<10
PHENANTHRENE ug/L			<10	<10	<10	<10
CARBAZOLE ug/L			<10	<10	<10	<10
DI-N-BUTYL PHTHALATE ug/L			<10	<10	<10	<10
FLUORANTHENE ug/L			<10	<10	<10	<10
BENZIDINE ug/L			<10	<10	<10	<10
PYRENE ug/L			<10	<10	<10	<10
BENZYL BUTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(A)ANTHRACENE ug/L			<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE ug/L			<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE ug/L			<10	<10	<10	<10
CHRYSENE ug/L			<10	<10	<10	<10
DI-N-OCTYL PHTHALATE ug/L			<10	<10	<10	<10
BENZO(B)FLUORANTHENE ug/L			<10	<10	<10	<10
BENZO(K)FLUORANTHENE ug/L	11		<10	<10	<10	<10
BENZO(A)PYRENE ug/L			<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE ug/L			<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE ug/L			<10	<10	<10	<10
BENZO(G,H,I)PERYLENE ug/L			<10	<10	<10	<10
[Surrogate Rec. - B/N] ug/L						
NITROBENZENE-D5 ug/L	250		62%	25%	51%	66.40%
2-FLUOROBIPHENYL ug/L			56%	22%	66%	76.40%
P-TERPHENYL ug/L			54%	39%	49%	68.00%
[Surrogate Rec. - Acids] ug/L						
2-FLUOROPHENOL ug/L			26%	10%	27%	30.00%
PHENOL-D6 ug/L			20%	7%	14%	25.50%
2,4,6-TRIBROMOPHENOL ug/L	365000	10	73%	3%	90%	72.80%

Table 2: Treatment Plant Quarterly Effluent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	March 3/4/2005	June 6/24/2005	Sept 9/9/2005	Jan 1/4/2006	
METALS Compound by SW846, 6010 / 7470							
PARAMETERS	UNITS						
Antimony	mg/L	0.062	1.6	<0.01	<0.01	<0.05	<0.01
Arsenic	mg/L	0.011	0.05	<0.02	<0.02	<0.02	<0.01
Barium	mg/L	0.231		0.08	0.06	0.09	0.08
Beryllium	mg/L		0.0053	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.02	<0.01	<0.01	<0.01
Calcium	mg/L			150	110	126	110
Chromium	mg/L	0.011	0.011	<0.01	<0.01	<0.01	<0.01
Copper	mg/L		0.012	<0.01	<0.01	<0.01	<0.01
Iron	mg/L		1	0.17	0.19	0.13	0.14
Lead	mg/L		0.0032	<0.01	<0.01	<0.01	<0.02
Magnesium	mg/L			140	115	125	100
Manganese	mg/L			0.02	0.18	0.94	0.23
Mercury	mg/L		0.000012	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/L		0.16	<0.01	0.02	0.02	0.02
Selenium	mg/L		0.005	<0.01	<0.01	0.17	<0.01
Silver	mg/L		0.00012	<0.01	<0.01	<0.01	<0.01
Thallium	mg/L	0.011	0.04	<0.05	<0.01	<0.05	<0.05
Zinc	mg/L		0.11	<0.01	0.03	<0.01	0.02
GENERAL INORGANICS							
PARAMETERS	UNITS						
BOD	mg/L			<5	41	5	10
COD	mg/L			50	82	52	50
Cyanide total	mg/L			<0.01	<0.01	<0.01	<0.01
Nitrogen, Ammonia	mg/L			<1.0	1.4	1.9	1.8
Nitrogen, Kjeldahl	mg/L			2.86	2.3	3	5
Nitrogen, Nitrate	mg/L			<0.1	0.57	0.81	1.2
Nitrogen, Nitrite	mg/L			0.66	0.57	2	<0.15
Nitrogen, Nitrite, and Nitrate	mg/L			2.86	<0.15	1.2	1.2
Organic Carbon total	mg/L			14.8	16.6	18	19
pH	s.u.			7.5	7.95	7.6	7.5
Phosphate Ortho-	mg/L			<0.80	<0.16	0.15	<0.16
Phosphorus total	mg/L			0.1	0.11	0.2	0.1
TDS	mg/L			2100	1600	1600	1500
TSS	mg/L			<5	<5	5	<5
Turbidity	NTU			0.4	1.5	0.4	<0.2

Notes:

NA = Not analyzed

Laboratory analysis by Microbac Labs Louisville, Ky

Table 3: Treatment Plant Semi-Annual Influent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	DEC 12/11/2002	June 6/13/2003	DEC 12/5/2003	June 6/3/2004	DEC 12/15/2004	June 6/24/2005	Jan 1/4/2006
VOLATILE ORGANIC COMPOUNDS BY SW8260										
PARAMETERS	UNITS									
DICHLORODIFLUOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
VINYL CHLORIDE	ug/L	5	<2	<2	<10	<2	<50	<5	<2	81
CHLOROMETHANE	ug/L		<10	18	<50	<10	<50	<5	<5	<50
BROMOMETHANE	ug/L		<10	34	<50	<10	<50	<5	<5	<50
CHLOROETHANE	ug/L		<10	<10	<50	<10	<50	<5	<5	<50
TRICHLOROFUOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,1-DICHLOROETHYLENE	ug/L		<5	7	<25	<5	<50	14	<5	53
METHYLENE CHLORIDE	ug/L		<10	924	800	640	1390	2930	109	8400
ACETONE	ug/L		<50	4100	3040	4840	2130	6690	502	9200
ACROLEIN	ug/L		<50	<50	<250	<50	<250	<25	<25	<250
IODOMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
CARBON DISULFIDE	ug/L		<10	16	<50	<10	<50	14	<5	<50
ACRYLONITRILE	ug/L		<50	<50	<250	<50	<50	<5	<5	<50
TRANS-1,2-DICHLOROETHYLENE	ug/L		<5	<5	<25	<5	<50	<5	<5	51
1,1-DICHLOROETHANE	ug/L		<5	71	<80	48	68	148	22	290
VINYL ACETATE	ug/L		<50	<50	<250	<50	<50	<5	<5	<50
2-BUTANONE (MEK)	ug/L	5	<50	2070	1390	1480	883	4060	362	1100
CIS-1,2-DICHLOROETHYLENE	ug/L	5	<5	<5	<25	<5	<50	8	<5	<50
BROMOCHLOROMETHANE	ug/L		<5	8	<25	<5	<50	<5	<5	<50
CHLOROFORM	ug/L		<5	178	550	310	422	1230	189	1000
2,2-DICHLOROPROPANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,1,1-TRICHLOROETHANE	ug/L	5	<5	15	70	21	<50	43	11	120
1,1-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5	<50	<5	<5	53
CARBON TETRACHLORIDE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
BENZENE	ug/L		<5	8	<25	<5	<50	14	6	<50
1,2-DICHLOROETHANE	ug/L	5	<5	5	<25	<5	<50	<5	<5	<50
TRICHLOROETHYLENE	ug/L		<5	26	50	24	50	64	20	240
DIBROMOMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,2-DICHLOROPROPANE	ug/L	5870	<5	<5	<25	<5	<50	<5	<5	<50
BROMODICHLOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
2-CHLOROETHYL VINYL ETHER	ug/L		<10	140	<50	<10	ND	<5	<5	<50
CIS-1,3-DICHLOROPROPYLENE	ug/L	5	<5	<5	<25	<5	<50	<5	<5	<50
4-METHYL-2-PENTANONE (MIBK)	ug/L	5	<50	604	<250	520	221	1050	<25	<250
TOLUENE	ug/L	5	<5	55	<50	39	<50	112	25	400
TRANS-1,3-DICHLOROPROPYLENE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,1,2-TRICHLOROETHANE	ug/L	5	<5	178	140	99	160	500	78	460
1,3-DICHLOROPROPANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
DIBROMOCHLOROMETHANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,2-DIBROMOETHANE (EDB)	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
TETRACHLOROETHYLENE	ug/L		<5	6	<25	7	<50	16	<5	<50
2-HEXANONE	ug/L		<10	<10	<50	17	<250	<5	<25	<250
1,1,1,2-TETRACHLOROETHANE	ug/L		<5	8	100	9	100	28	<5	<50
CHLOROBENZENE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1-CHLOROHEXANE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
ETHYLBENZENE	ug/L		<5	10	<25	<5	<50	14	<5	<50
M-XYLENE / P-XYLENE	ug/L		<10	43	<25	15	<100	38	<10	<100
O-XYLENE	ug/L		<5	11	<25	5	<50	14	6	<50
STYRENE	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
BROMOFORM	ug/L		<5	<5	<25	<5	<50	<5	<5	<50
1,2,3-TRICHLOROPROPANE	ug/L	10	<5	<5	<25	<5	<50	<5	<5	<50
ISOPROPYLBENZENE (CUMENE)	ug/L		<5	<5	<25	<5	<50	<5	<5	<50

Table 3: Treatment Plant Semi-Annual Influent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:		ROD	KPDES	June	DEC	June	DEC	June	DEC	June	Jan
		Requirements	Requirements	6/12/2002	12/11/2002	6/13/2003	12/5/2003	6/3/2004	12/15/2004	6/24/2005	1/4/2006
BROMOBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
TRANS-1,4-DICHLORO-2-BUTENE	ug/L			<10	<10	<50	<10	<50	<5	<5	<50
N-PROPYLBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,1,2,2-TETRACHLOROETHANE	ug/L			<5	84	100	62	<50	238	45	<50
2-CHLOROTOLUENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
3-CHLOROTOLUENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
4-CHLOROTOLUENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,3,5-TRIMETHYLBENZENE	ug/L	23		<5	<5	<25	<5	<50	<5	<5	<50
TERT-BUTYLBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,2,4-TRIMETHYLBENZENE	ug/L			<5	<5	<25	<5	<50	<5	8	<50
SEC-BUTYLBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,3-DICHLOROBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,4-DICHLOROBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
4-ISOPROPYLTOLUENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,2-DICHLOROBENZENE	ug/L		5	<5	<5	<25	<5	<50	<5	<5	<50
N-BUTYLBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,2-DIBROMO-3-CHLOROPROPANE	ug/L		5	<5	<5	<25	<5	<50	<5	<5	<50
1,2,4-TRICHLOROBENZENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
NAPHTHALENE	ug/L			<5	<5	<25	<5	<50	<5	15	<50
HEXACHLOROBUTADIENE	ug/L			<5	<5	<25	<5	<50	<5	<5	<50
1,2,3-TRICHLOROBENZENE	ug/L			<25	<5	<25	<5	<50	<5	15	<50
DCA SURROGATE RECOVERY	%	4570	10	102%	90	102%	95%	95%	80%	93%	102%
TOL-DB SURROGATE RECOVERY	%			93%	95	93%	92%	98%	94%	82%	134%
BFB SURROGATE RECOVERY	%			105%	100	105%	95%	87%	98%	91%	99%
DBFM SURROGATE RECOVERY	%							87	85%	92%	101%
SEMI-VOLATILE ORGANIC COMPOUNDS BY SW8270											
PARAMETERS	UNITS										
PYRIDINE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
N-NITROSODIMETHYLAMINE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BIS(2-CHLOROETHYL)ETHER	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
PHENOL	ug/L			<10	400	320	400	140	100	<10	140
2-CHLOROPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
1,3-DICHLOROBENZENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
1,4-DICHLOROBENZENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
1,2-DICHLOROBENZENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZYL ALCOHOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BIS(2-CHLOROISOPROPYL)ETHER	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2-METHYLPHENOL	ug/L			<10	<10	<10	<10	50	<10	<10	48
HEXACHLOROETHANE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
N-NITROSODI-N-PROPYLAMINE	ug/L	11		<10	<10	<10	<10	<10	<10	<10	<10
3&4-METHYLPHENOL	ug/L			<10	120	150	120	60	115	<10	38
NITROBENZENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
ISOPHORONE	ug/L			<10	60	580	60	60	136	<10	46
2-NITROPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2,4-DIMETHYLPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	14
BIS(2-CHLOROETHOXY)METHANE	ug/L	250		<10	<10	<10	<10	<10	<10	<10	<10
2,4-DICHLOROPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2,6-DICHLOROPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
1,2,4-TRICHLOROBENZENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
NAPHTHALENE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
4-CHLOROANILINE	ug/L			<10	<10	<10	<10	<10	<10	<10	<10
HEXACHLOROBUTADIENE	ug/L	365000	10	<10	<10	<10	<10	<10	<10	<10	<10
4-CHLORO-3-METHYLPHENOL	ug/L			<10	<10	<10	<10	<10	<10	<10	<10

Table 3: Treatment Plant Semi-Annual Influent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:	ROD Requirements	KPDES Requirements	June 6/12/2002	DEC 12/11/2002	June 6/13/2003	DEC 12/5/2003	June 6/3/2004	DEC 12/15/2004	June 6/24/2005	Jan 1/4/2006
2-METHYLNAPHTHALENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
HEXACHLOROCYCLOPENTADIENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-TRICHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2,4,5-TRICHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2-CHLORONAPHTHALENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2-NITROANILINE ug/L			<50	<50	<50	<50	<10	<10	<10	<10
DIMETHYL PHTHALATE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
ACENAPHTHYLENE ug/L	23		<10	<10	<10	<10	<10	<10	<10	<10
2,6-DINITROTOLUENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
ACENAPHTHENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
3-NITROANILINE ug/L			<50	<50	<50	<50	<10	<10	<10	<10
2,4-DINITROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
4-NITROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
DIBENZOFURAN ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2,4-DINITROTOLUENE ug/L		5	<10	<10	<10	<10	<10	<10	<10	<10
FLUORENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
DIETHYL PHTHALATE ug/L		5	<10	<10	<10	<10	<10	<10	<10	<10
4-CHLOROPHENYL PHENYL ETHER ug/L			<10	<10	<10	<10	<10	<10	<10	<10
2-METHYL 4,6-DINITROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
4-NITROANILINE ug/L			<50	<50	<50	<50	<10	<10	<10	<10
N-NITROSO-DIPHENYLAMINE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
4-BROMOPHENYL PHENYL ETHER ug/L	4570	10	<10	<10	<10	<10	<10	<10	<10	<10
HEXACHLOROBENZENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
PENTACHLOROPHENOL ug/L			<10	<10	<10	<10	<10	<10	<10	<10
ANTHRACENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
PHENANTHRENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
CARBAZOLE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
DI-N-BUTYL PHTHALATE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
FLUORANTHENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZIDINE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
PYRENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZYL BUTYL PHTHALATE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZO(A)ANTHRACENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
3,3'-DICHLOROBENZIDINE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BIS(2-ETHYLHEXYL)PHTHALATE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
CHRYSENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
DI-N-OCTYL PHTHALATE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZO(B)FLUORANTHENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZO(K)FLUORANTHENE ug/L	11		<10	<10	<10	<10	<10	<10	<10	<10
BENZO(A)PYRENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
INDENO(1,2,3-C,D)PYRENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
DIBENZO(A,H)ANTHRACENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
BENZO(G,H,I)PERYLENE ug/L			<10	<10	<10	<10	<10	<10	<10	<10
[Surrogate Rec. - B/N]										
NITROBENZENE-D5 ug/L	250		105	81	26	81	68%	38%	3%	148%
2-FLUOROBIPHENYL ug/L			85	102	23	102	76%	31%	3%	80%
P-TERPHEYL ug/L			107	85	37	85	93%	112%	9%	82%
[Surrogate Rec. - Acids]										
2-FLUOROPHENOL ug/L			68	49	12	49	45%	114%	0%	43%
PHENOL-D6 ug/L			44	39	17	39	0%	1%	7%	24%
2,4,6-TRIBROMOPHENOL ug/L	365000	10	61	97	40	97	104%	95%	0%	89%

Table 3: Treatment Plant Semi-Annual Influent Sampling Results 2005

SAMPLE MONTH: DATE COLLECTED:		ROD Requirements	KPDES Requirements	June 6/12/2002	DEC 12/11/2002	June 6/13/2003	DEC 12/5/2003	June 6/3/2004	DEC 12/15/2004	June 6/24/2005	Jan 1/4/2006
METALS Compound by SW846, 6010 / 7470											
PARAMETERS	UNITS										
Antimony	mg/L	0.062	1.6	<0.1	<0.01	<0.1	<0.01	<0.05	<0.02	0.01	<0.02
Arsenic	mg/L	0.011	0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.010
Barium	mg/L	0.231		0.1	0.19	0.12	0.09	0.12	0.8	0.22	0.16
Beryllium	mg/L		0.0053	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L		0.0011	<0.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.01	<0.01
Calcium	mg/L			100	120	110	110	124	127	124	120
Chromium	mg/L	0.011	0.011	<0.1	<0.01	<0.1	<0.01	<0.05	<0.01	<0.01	<0.01
Copper	mg/L		0.012	0.6	<0.01	<0.01	<0.01	<0.05	<0.02	<0.01	<0.02
Iron	mg/L		1	4.3	8	5.98	9.18	7.5	51.8	60.4	4.83
Lead	mg/L		0.0032	<0.1	<0.01	<0.1	<0.01	<0.05	<0.02	<0.01	<0.02
Magnesium	mg/L			89	92	120	96.7	119	110	112	110
Manganese	mg/L			1.8	1.51	1.69	1.4	1.71	1.57	1.52	1.2
Mercury	mg/L		0.000012	0.0001	<0.0002	0.0001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/L		0.16	<0.1	0.02	0.03	0.03	0.03	<0.01	0.09	0.02
Selenium	mg/L		0.005	<0.1	<0.01	<0.1	<0.01	<0.05	0.08	<0.05	<0.01
Silver	mg/L		0.00012	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	mg/L	0.011	0.04	<0.1	<0.01	<0.1	<0.01	<0.05	<0.05	<0.01	<0.05
Zinc	mg/L		0.11	<0.1	0.02	0.05	0.03	<0.05	0.1	0.14	0.04
GENERAL INORGANICS											
PARAMETERS	UNITS										
BOD	mg/L			123	111	81	47	104	220	51	53
COD	mg/L			254	290	197	120	254	340	190	180
Cyanide total	mg/L			0.01	<0.01	0.01	0.04	<0.01	<0.01	<0.01	<0.01
Nitrogen, Ammonia	mg/L			9	8	6.9	6	4	5.9	7.1	8.3
Nitrogen, Kjeldahl	mg/L			9	10	7.9	6	6.4	7.6	6.6	9.2
Nitrogen, Nitrate	mg/L			0.55	<0.5	<0.5	<0.01	0.4	0.41	0.15	<0.11
Nitrogen, Nitrite	mg/L			<0.05	<0.05	0.007	<0.01	<0.15	0.6	0.15	<0.15
Nitrogen, Nitrite, and Nitrate	mg/L			0.55	0.5	0.007	<0.01	0.4	<1.0	<0.15	<0.5
Organic Carbon total	mg/L			120	55	49.3	42	75.9	166.2	41.8	50
PH	s.u.			6.8	7.82	6.67	7	6.8	7.2	6.88	7.5
Phosphate Ortho-	mg/L			<0.1	<0.1	0.1	<0.3	<0.2	<0.64	0.18	<0.61
Phosphorus total	mg/L			<1	0.1	<0.1	0.09	<0.1	0.3	0.2	<0.1
TDS	mg/L			1290	1300	1310	1424	1480	1500	1500	1500
TSS	mg/L			42	10	11	10	29	<5	284	13
Turbidity	NTU			54	300	100	36.6	5.1	190	2.8	180

Notes:
 NA = Not analyzed
 Laboratory analysis by Microbac Labs Louisville, Ky

Table 5: OP Unit One Annual Groundwater Monitoring Wells Sampling Results 2005

DATE COLLECTED		OP UNIT ONE - NOVEMBER 8, 2005										
SAMPLE ID:		MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-11	MW-12	MW-13	MW-14	MW-15
VOLATILE ORGANIC COMPOUNDS												
PARAMETERS	UNITS											
Acetone	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
1,1-Dichloroethane	ug/L	ND	ND	ND	ND	ND	ND	3	ND	NA	NA	3
1,1-Dichloroethene	ug/L	ND	ND	ND	ND	ND	ND	1	ND	NA	NA	ND
1,2-Dichloroethene (total)	ug/L	ND	ND	ND	ND	ND	ND	1100	ND	NA	NA	36
Toluene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
Trichloroethene	ug/L	ND	ND	ND	ND	ND	ND	1500	ND	NA	NA	ND
Xylene (Total)		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
SEMI-VOLATILE ORGANIC COMPOUNDS												
PARAMETERS	UNITS											
bis(2-Ethylhexyl) phthalate	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
Caprolactam	ug/L	ND	ND	3	3	53	ND	ND	ND	NA	NA	ND
Naphthalene	ug/L	ND	ND	ND	2	ND	ND	ND	ND	NA	NA	ND
1,1,1-Trichloroethane	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
METALS												
PARAMETERS	UNITS											
Aluminum	ug/L	1480	8230	4970	11400	450	485	80800	332	NA	NA	10800
Antimony	ug/L	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	NA	NA	3.7
Arsenic	ug/L	6.1	9.5	6.1	11.4	6.1	6.1	52.9	6.1	NA	NA	9.5
Barium	ug/L	55	46.5	39.2	380	67.8	264.6	104	11.8	NA	NA	113
Beryllium	ug/L	0.14	0.84	0.26	1.1	0.14	0.14	3.3	0.14	NA	NA	0.75
Cadmium	ug/L	0.22	0.22	0.22	0.22	0.22	0.24	0.22	0.22	NA	NA	0.22
Calcium	ug/L	63900	57100	85800	65700	14500	65700	62300	33100	NA	NA	11400
Chromium	ug/L	346	16.8	66	22.4	1.4	6.4	107	0.96	NA	NA	439
Cobalt	ug/L	9	18.2	8.2	20.5	4.6	0.84	102	0.78	NA	NA	33.3
Copper	ug/L	17.2	25.6	18.6	34	2.7	2.8	119	1.2	NA	NA	22.5
Iron	ug/L	7250	24700	11100	38400	2980	951	196000	1110	NA	NA	22500
Lead	ug/L	3.3	10.6	3.9	46.4	1.9	1.9	40	1.9	NA	NA	9.4
Magnesium	ug/L	44400	51200	21800	44600	26900	36700	95500	300000	NA	NA	23300
Manganese	ug/L	460	991	545	2290	2060	362	2560	249	NA	NA	25700
Mercury	ug/L	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	NA	NA	1260
Nickel	ug/L	394	35.8	78	50.2	16.7	16.4	212	2.7	NA	NA	0.024
Potassium	ug/L	8090	10900	12300	11500	11100	9940	19300	20300	NA	NA	90.4
Selenium	ug/L	4.4	4.4	4.4	4.9	4.4	4.4	4.4	4.4	NA	NA	5270
Silver	ug/L	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	NA	NA	4.4
Sodium	ug/L	156000	35300	197000	36500	33400	48800	49700	2900000	NA	NA	0.67
Thallium	ug/L	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	NA	NA	27200
Vanadium	ug/L	7	16.8	9.3	24.2	0.99	1.7	116	1.1	NA	NA	7.6
Zinc	ug/L	28.6	81	50.4	130	13.6	3.9	616	47.3	NA	NA	21.8
Cyanide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	93.6

Notes:

ND = Not detected above laboratory detection limits listed on laboratory data sheets

NA = Not analyzed

Laboratory analysis by Lancaster Laboratories in Lancaster, PA.

Appendix E

Quarterly Monitoring Reports 2001-2005

**APPENDIX A
FIRST QUARTER 2001 INSPECTION REPORTS
OF UNITS ONE AND TWO**



May 30, 2001

FILE COPY

Mr. David S. Miller
Principal Facility Environmental Control Engineer
Ford Motor Land Services Corporation
550 Town Center Drive,
Suite 200
Dearborn, MI 48126

**Subject: Smith's Farm OU-1 and OU-2 – Quarterly Inspection
Report for First Quarter 2001
LAW Project 12000-1-0006**

Dear Mr. Miller:

Please find attached a copy of the Quarterly Inspection Reports for Op Unit One and Op Unit Two for the first quarter of 2001.

With respect to the various security fencing problems highlighted, we have obtained quotations for repairs to the security fencing. The fencing repairs subcontract will be awarded prior to June 1, 2001 and the work will be completed in June 2001.

Please do not hesitate to contact Rob Bocarro at (770) 421-7013 if you have any questions about the attached reports.

Sincerely yours,

LAW ENGINEERING & ENVIRONMENTAL SERVICES, INC.

Robert A. Bocarro
Project Manager

**Attachments: Smith's Farm Op Unit One Quarterly Report, First Quarter 2001
Smith's Farm Op Unit Two Quarterly Report, First Quarter 2001**

Ref: 12000-1-0006
Dept:

Date: 04JUN01 SHIPPING \$3.62
Wgt: 0.1 LBS SPECIAL \$0.00
HANDLING \$0.00

TOTAL \$3.62

SERVICE: STANDARD OVERNIGHT
TRACK: 4817 2874 6431

LAW Engineering and Environmental Services, Inc.
3200 Town Point Drive, NW, Suite 100 • Kennesaw, GA 30144
770-421-3400

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Vandalism at North Gate. Currently getting repair bids.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<input checked="" type="checkbox"/> Yes No	Erosion evident throughout Area B. Currently getting repair bids.
--	---	--

3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <input checked="" type="checkbox"/> No	Small areas evident. No fluid.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <input type="checkbox"/> No <input type="checkbox"/>	Annual inspection.
--	--	--------------------

Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <input type="checkbox"/> No <input type="checkbox"/>	Annual inspection.
--	--	--------------------

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <input checked="" type="checkbox"/> No	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
---	--

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	Yes No	Annual inspection
Is liquid present in secondary containment space?	Yes No	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes No	Annual inspection.

9. Leachate Storage Tanks (continued)

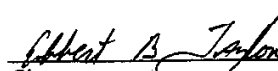
Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes N6	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes N6	
--	---------------	--

INSPECTOR

REVIEWED BY:

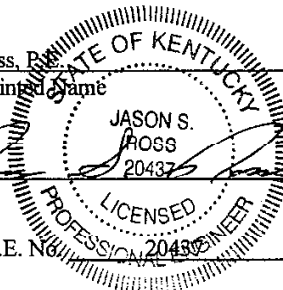
Ebbert B. Taylor
Typed or Printed Name

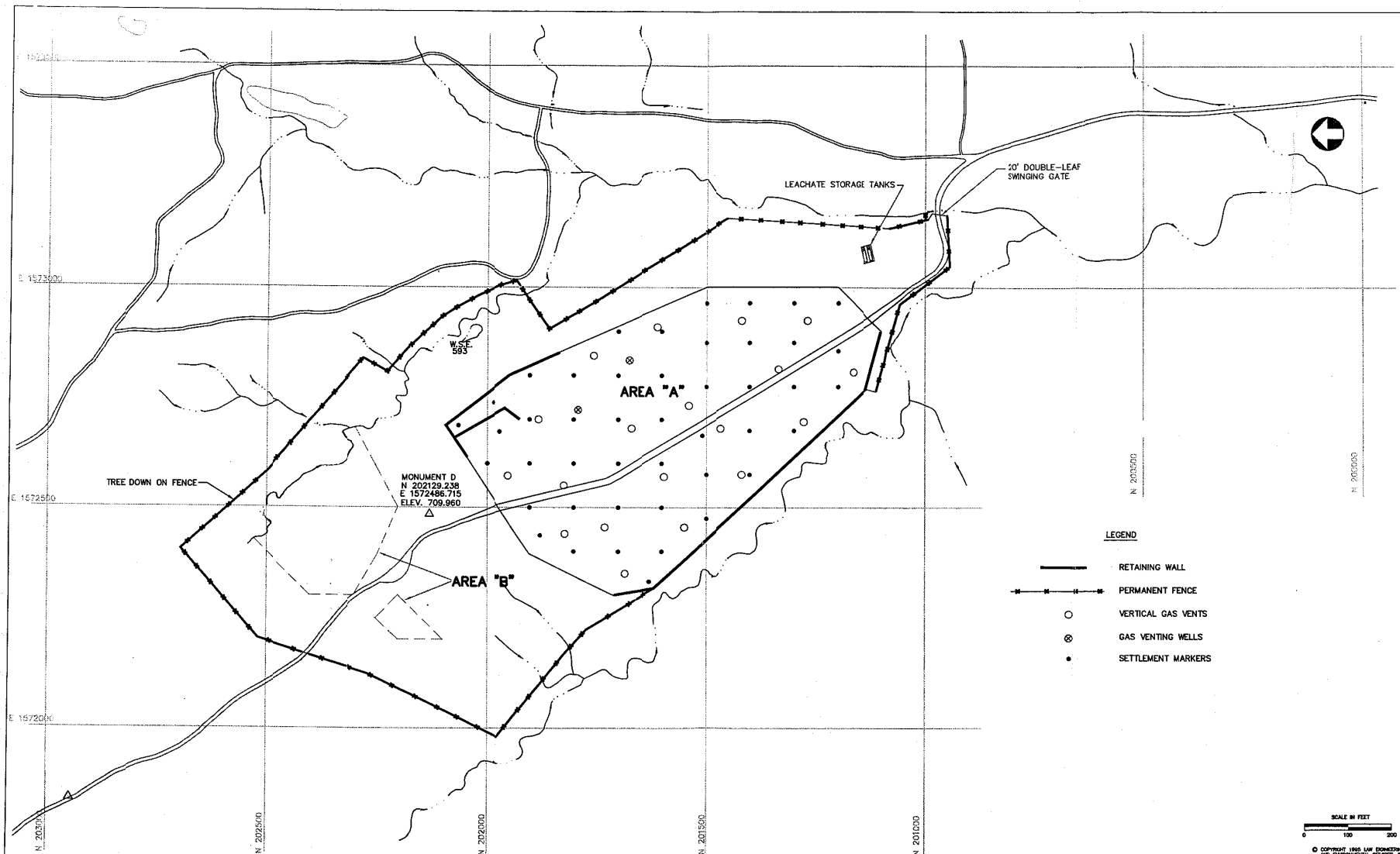

Signature

Jason S. Ross, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No.





DESIGNED	
DRAWN	
CHECKED	
IN CHARGE	
DATE 05/05/00	

REV	DATE	BY	DESCRIPTION

SMITH'S FARM OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

SUBMITTED: _____

APPROVED: _____

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
1st QUARTER 2001

SCALE AS SHOWN

CONTRACT 12000-8-0206

FIGURE 1 OF 0

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> No	Section of fence is down due to heavy rainfall in late June, 1999. One section of fence disconnected at top of landfill on north side. See map for locations. Currently getting repair bids.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Area across from treatment plant has washouts under fence. Currently getting repair bids.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Entrance gates sagging. Currently getting repair bids.

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> No	Slight settlement at recovery well #3 and junction box.
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	<input checked="" type="checkbox"/> No	Three monuments disturbed during mowing and surface drainage improvement activities. Monuments reinstalled.
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Minor erosion is currently being repaired at various locations on the cap.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Some sparse and bare areas due to drainage improvement construction and 1999 summer drought.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Many vent/well risers are leaning slightly.
--	--	--

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Slight settlement around vent risers.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Currently under improvement.
---	--	------------------------------

Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Currently under improvement.
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Settlement around recovery well #3 and junction box.
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
--	--	--

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<input checked="" type="checkbox"/> Yes No	
--	--	--

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <input checked="" type="checkbox"/> No	
Extraction Well Pumps and associated Piping?	Yes <input checked="" type="checkbox"/> No	
Leachate Junction Manhole?	Yes <input checked="" type="checkbox"/> No	
Leachate Lift Station and Lift Station Pump?	Yes <input checked="" type="checkbox"/> No	
Leachate Detection Points?	Yes <input checked="" type="checkbox"/> No	
Leachate Collection Pipe Cleanouts and Vents?	Yes <input checked="" type="checkbox"/> No	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <input checked="" type="checkbox"/> No	

6. Infiltration Gallery

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is standing water present? If Yes, describe.	Yes <input checked="" type="checkbox"/>	
Is debris or trash present? If Yes, describe.	Yes <input checked="" type="checkbox"/>	
Are strong odors present? If Yes, describe.	<input checked="" type="checkbox"/> No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <input checked="" type="checkbox"/>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> No	Alligator cracking evident various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (riils, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	Surface drainage improvements currently ongoing.
Are culverts damaged? If Yes, describe the conditions observed (sagging, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is road a safe and usable travel way?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Smith's Farm Op Unit Two
Quarterly Report

First Quarter 2001
April 27, 2001

8. General Comments or Observations

INSPECTOR

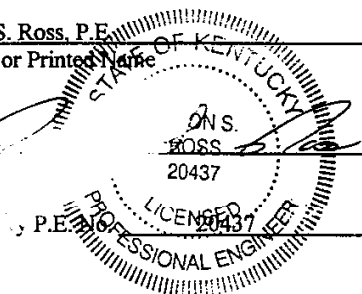
REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Jason S. Ross, P.E.
Typed or Printed Name

Jason S. Ross
Signature



**APPENDIX B
SECOND QUARTER 2001 INSPECTION REPORTS
OP UNITS ONE AND TWO**



FILE COPY

August 24, 2001

Mr. David S. Miller
Principal Facility Environmental Control Engineer
Ford Motor Land Services Corporation
550 Town Center Drive,
Suite 200
Dearborn, MI 48126

**Subject: Smith's Farm OU-1 and OU-2 – Quarterly Report
Report for Second Quarter 2001
LAW Project 12000-1-0006**

Dear Mr. Miller:

We have pleasure in submitting copies of the Quarterly Reports for Op Unit One and Op Unit Two for the second quarter of 2001.

We have subsequently attended to the repairs to the North Gate of Op Unit One and Section of Fence of Op Unit Two that were referred to in the Quarterly Report. In the case of Op Unit One, we are currently attending to the fertilization and reseeded of Area B. Otherwise the condition of Op Unit One and Op Unit Two is entirely satisfactory.

Please do not hesitate to contact Rob Bocarro at (770) 421-7013 if you have any questions about the attached reports.

Sincerely yours,

LAW ENGINEERING & ENVIRONMENTAL SERVICES, INC.

Robert A. Bocarro
Project Manager

Attachments: Smith's Farm Op Unit One Quarterly Report, Second Quarter 2001
Smith's Farm Op Unit Two Quarterly Report, Second Quarter 2001

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Vandalism at North Gate. Currently being repaired.

Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
---	--

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Erosion evident throughout Area B. Currently being repaired.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
--	--

5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <input checked="" type="checkbox"/> No	Small areas evident. No fluid.
Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <input checked="" type="checkbox"/> No	

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes No	Annual inspection.
Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes No	Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <input checked="" type="checkbox"/> No	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<input checked="" type="checkbox"/>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	Yes	No	Annual inspection
Is liquid present in secondary containment space?	Yes	No	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	No	Annual inspection.

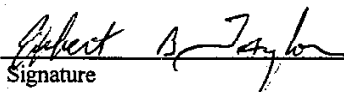
9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <input checked="" type="checkbox"/> No	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <input checked="" type="checkbox"/> No	
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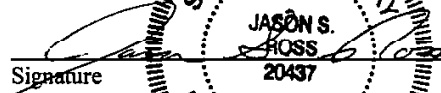
INSPECTOR

Ebbert B. Taylor
Typed or Printed Name

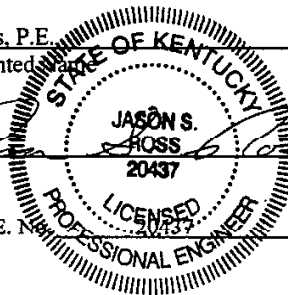

Signature

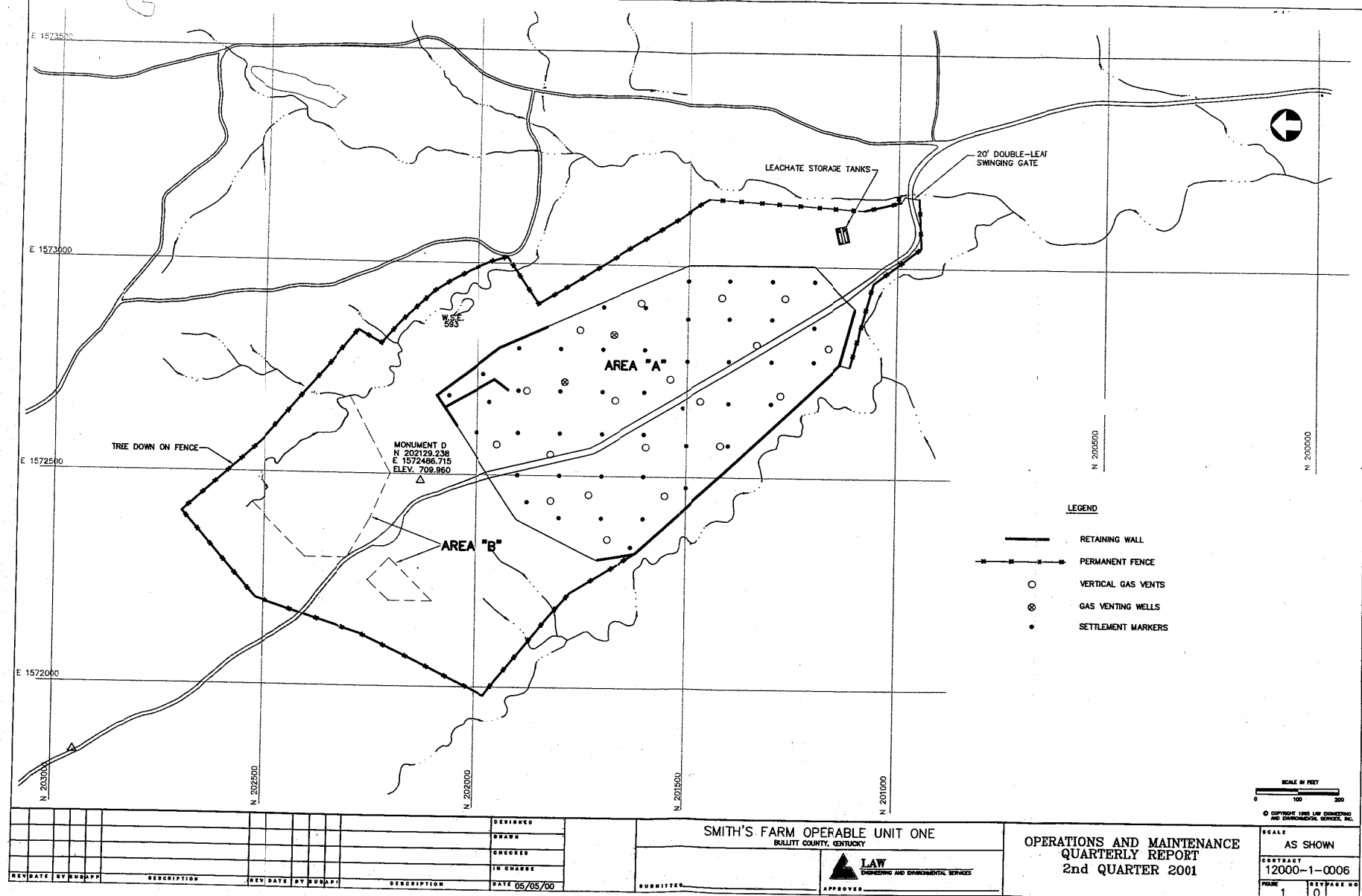
REVIEWED BY:

Jason S. Ross, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No. 20437





QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Section of fence currently being repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Some sparse and bare areas have recently been seeded.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Three vent risers are leaning slightly.
--	--	--

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Slight settlement around vent risers.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <input checked="" type="checkbox"/>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/>	

4. Surface Water Drainage and Erosion Control System (Continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/>	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<input checked="" type="checkbox"/> No	
--	--	--





5. Leachate Collection System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <input checked="" type="checkbox"/> No	
Extraction Well Pumps and associated Piping?	Yes <input checked="" type="checkbox"/> No	
Leachate Junction Manhole?	Yes <input checked="" type="checkbox"/> No	
Leachate Lift Station and Lift Station Pump?	Yes <input checked="" type="checkbox"/> No	
Leachate Detection Points?	Yes <input checked="" type="checkbox"/> No	
Leachate Collection Pipe Cleanouts and Vents?	Yes <input checked="" type="checkbox"/> No	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.5 Gallons removed from LD-4. May be condensate. Monitoring weekly.

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <input checked="" type="checkbox"/>	
Is debris or trash present? If Yes, describe.	Yes <input checked="" type="checkbox"/>	
Are strong odors present? If Yes, describe.	<input checked="" type="checkbox"/> No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <input checked="" type="checkbox"/>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	 No	Alligator cracking evident various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes 	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes 	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes 	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is road access to OU2 and the treatment plant safe and efficient?	<input checked="" type="checkbox"/> Yes No	

Smith's Farm Op Unit Two
Quarterly Report

Second Quarter 2001
July 26, 2001

8. General Comments or Observations

INSPECTOR

Ebbert B. Taylor
Typed or Printed Name

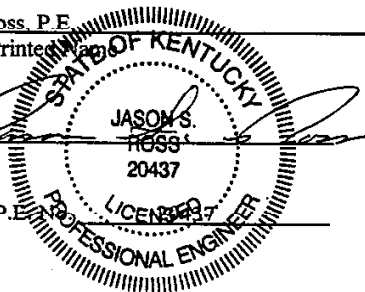
Ebbert B. Taylor
Signature

REVIEWED BY:

Jason S. Ross, P.E.
Typed or Printed Name

Jason S. Ross
Signature

Kentucky P.E.





SMITH'S FARM OPERABLE UNIT TWO BULLITT COUNTY, KENTUCKY	
SUBMITTED _____	<div style="text-align: center;">  LAW ENGINEERING AND ENVIRONMENTAL SERVICES </div> <div style="text-align: center; padding-top: 10px;"> APPROVED _____ </div>


LAW
 ENGINEERING AND ENVIRONMENTAL SERVICES

SCALE IN FEET
 (Print Scale Number) _____
 0 200 400

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 AND ENVIRONMENTAL SERVICES, INC.

SCALE
 AS SHOWN

CONTRACT
 12000-1-0006

FIGURE 1	REVISION NO 0
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**APPENDIX B
SECOND QUARTER 2001 INSPECTION REPORTS
OP UNITS ONE AND TWO**



FILE COPY

August 24, 2001

Mr. David S. Miller
Principal Facility Environmental Control Engineer
Ford Motor Land Services Corporation
550 Town Center Drive,
Suite 200
Dearborn, MI 48126

**Subject: Smith's Farm OU-1 and OU-2 – Quarterly Report
Report for Second Quarter 2001
LAW Project 12000-1-0006**

Dear Mr. Miller:

We have pleasure in submitting copies of the Quarterly Reports for Op Unit One and Op Unit Two for the second quarter of 2001.

We have subsequently attended to the repairs to the North Gate of Op Unit One and Section of Fence of Op Unit Two that were referred to in the Quarterly Report. In the case of Op Unit One, we are currently attending to the fertilization and reseeded of Area B. Otherwise the condition of Op Unit One and Op Unit Two is entirely satisfactory.

Please do not hesitate to contact Rob Bocarro at (770) 421-7013 if you have any questions about the attached reports.

Sincerely yours,

LAW ENGINEERING & ENVIRONMENTAL SERVICES, INC.

Robert A. Bocarro
Project Manager

Attachments: Smith's Farm Op Unit One Quarterly Report, Second Quarter 2001
Smith's Farm Op Unit Two Quarterly Report, Second Quarter 2001

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Vandalism at North Gate. Currently being repaired.

Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<input checked="" type="checkbox"/> Yes No	Erosion evident throughout Area B. Currently being repaired.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <input checked="" type="checkbox"/> No	Small areas evident. No fluid.
Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <input checked="" type="checkbox"/> No	

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes No	Annual inspection.
Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes No	Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <input checked="" type="checkbox"/> No	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<input checked="" type="checkbox"/>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	Yes	No	Annual inspection
Is liquid present in secondary containment space?	Yes	No	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	No	Annual inspection.

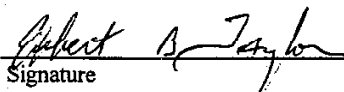
9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <input checked="" type="checkbox"/> No	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <input checked="" type="checkbox"/> No	
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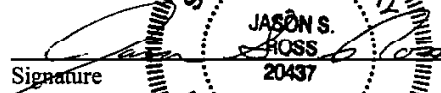
INSPECTOR

Ebbert B. Taylor
Typed or Printed Name

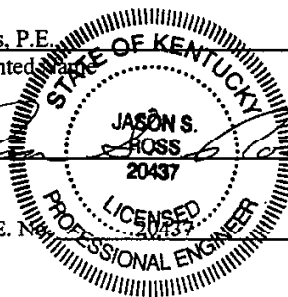

Signature

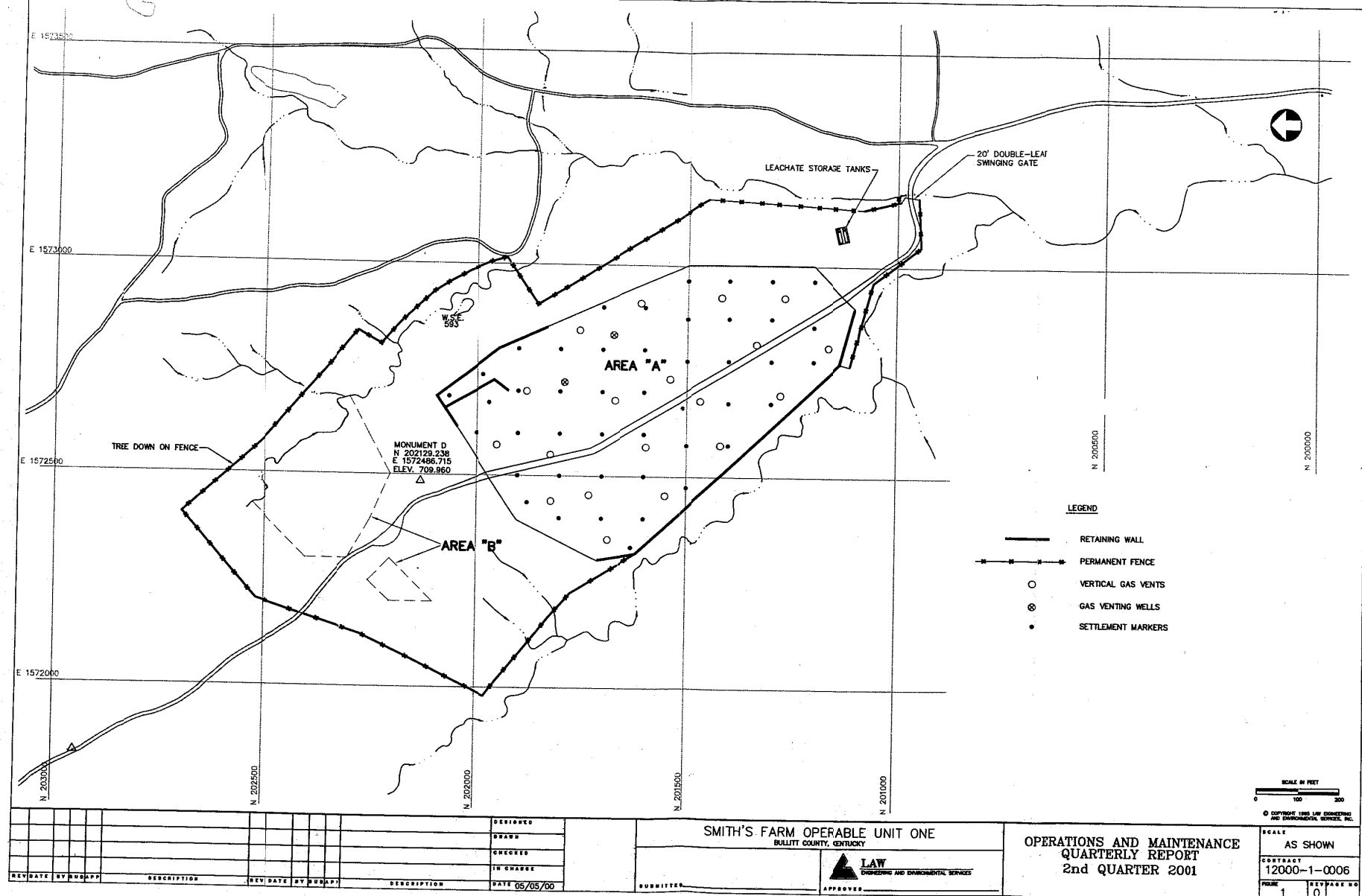
REVIEWED BY:

Jason S. Ross, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No. 20437





QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Section of fence currently being repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> No	Some sparse and bare areas have recently been seeded.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Three vent risers are leaning slightly.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Slight settlement around vent risers.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <input checked="" type="checkbox"/>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/>	

4. Surface Water Drainage and Erosion Control System (Continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/>	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<input checked="" type="checkbox"/> No	
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5. Leachate Collection System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <input checked="" type="checkbox"/> No	
Extraction Well Pumps and associated Piping?	Yes <input checked="" type="checkbox"/> No	
Leachate Junction Manhole?	Yes <input checked="" type="checkbox"/> No	
Leachate Lift Station and Lift Station Pump?	Yes <input checked="" type="checkbox"/> No	
Leachate Detection Points?	Yes <input checked="" type="checkbox"/> No	
Leachate Collection Pipe Cleanouts and Vents?	Yes <input checked="" type="checkbox"/> No	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.5 Gallons removed from LD-4. May be condensate. Monitoring weekly.

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <input checked="" type="checkbox"/> No	
Is debris or trash present? If Yes, describe.	Yes <input checked="" type="checkbox"/> No	
Are strong odors present? If Yes, describe.	<input checked="" type="checkbox"/> Yes No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <input checked="" type="checkbox"/> No	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	 No	Alligator cracking evident various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes 	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes 	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes 	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is road access to OU2 and the treatment plant safe and efficient?	<input checked="" type="checkbox"/> Yes No	

Smith's Farm Op Unit Two
Quarterly Report

Second Quarter 2001
July 26, 2001

8. General Comments or Observations

INSPECTOR

Ebbert B. Taylor
Typed or Printed Name

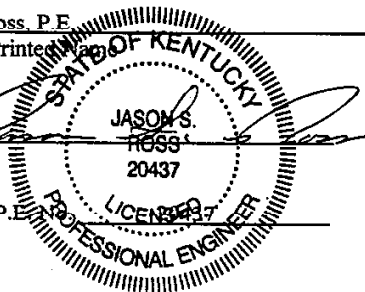
Ebbert B. Taylor
Signature

REVIEWED BY:

Jason S. Ross, P.E.
Typed or Printed Name

Jason S. Ross
Signature

Kentucky P.E.





SMITH'S FARM OPERABLE UNIT TWO BULLITT COUNTY, KENTUCKY	
SUBMITTED _____	<div style="text-align: center;">  LAW ENGINEERING AND ENVIRONMENTAL SERVICES </div> <div style="text-align: center; padding-top: 10px;"> APPROVED _____ </div>


LAW
 ENGINEERING AND ENVIRONMENTAL SERVICES

SCALE IN FEET
 (Insert Scale Here) _____
 0 200 400

© COPYRIGHT 1985 LAW ENGINEERING
 AND ENVIRONMENTAL SERVICES, INC.

SCALE
 AS SHOWN

CONTRACT
 12000-1-0006

FIGURE	REVISION NO
1	0

*2001 Annual Operation & Maintenance Report
Smith's Farm Operable Units One and Two
LAW Project 12000-1-0006*

April 2002

**APPENDIX C
THIRD QUARTER 2001 INSPECTION REPORTS
OP UNITS ONE AND TWO**



December 20, 2001

FILE COPY

Mr. David S. Miller
Principal Facility Environmental Control Engineer
Ford Motor Land Services Corporation
550 Town Center Drive
Suite 200
Dearborn, MI 48126

Subject: **Smith's Farm OU-1 and OU-2 Quarterly Inspection
Report for Third Quarter 2001
LAW Project No. 12000-1-0006**

Dear Mr. Miller:

Please find attached a copy of the Quarterly Inspection Reports for OP Unit One and Op Unit Two for the third quarter of 2001.

Please do not hesitate to contact me at (770) 421-7013 should you have any questions or concerns regarding the attached reports or the project in general.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

A handwritten signature in black ink, appearing to read "Robert A. Bocarro".

Robert A. Bocarro
Principal Project Manager

Attachments: Smith's Farm Op Unit One Quarterly Report, Third Quarter 2001
Smith's Farm Op Unit Two Quarterly Report, Third Quarter 2001

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Fence line needs to be clear of small trees 6' to 10' and heavy brush on both sides of fence. Unable to walk next to fence in some areas of perimeter fence to check for washouts.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Several very small areas have occurred. Rock is already onsite. Currently waiting for equipment and will be corrected by site representatives.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Several small gullies next to gabions have occurred due to rains. Will be corrected by site representatives.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Some small areas have occurred due to rains estimated size 6"x6". Currently waiting for equipment and will be corrected by site representatives.
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

6. Retaining Walls

Questions	Response		Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes	<input checked="" type="checkbox"/> No	Small areas evident. No fluid.
Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes	<input checked="" type="checkbox"/> No	

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes	<input checked="" type="checkbox"/> No	Annual inspection.
Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes	<input checked="" type="checkbox"/> No	Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

8. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/> No	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<input checked="" type="checkbox"/> No	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes	<input checked="" type="checkbox"/> No	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/> No
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<input checked="" type="checkbox"/> No	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<input checked="" type="checkbox"/> No	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	Yes	No	Annual inspection
Is liquid present in secondary containment space?	Yes	No	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	No	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where in the system the leak is occurring.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

INSPECTOR

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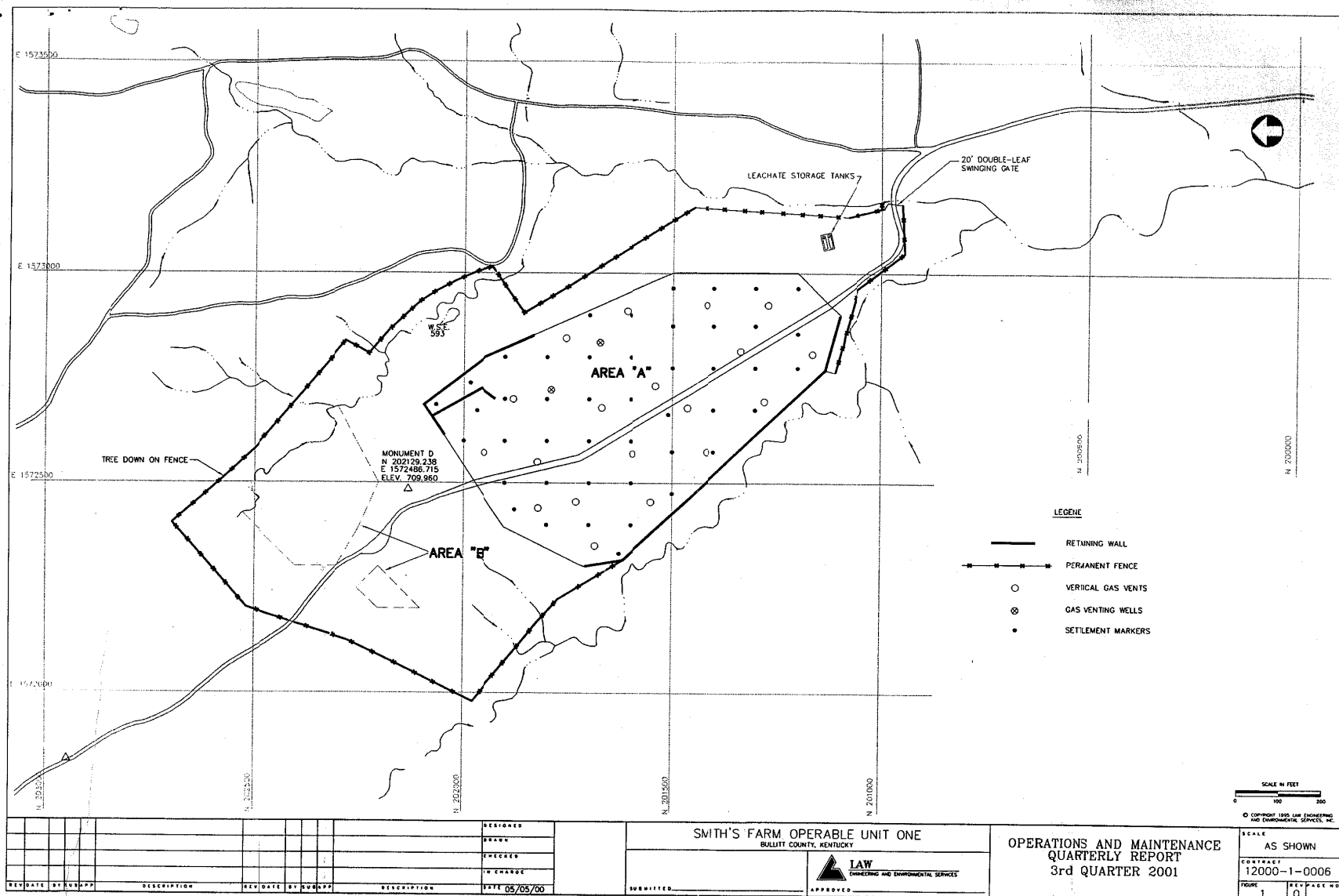
Ebbert B. Taylor
Typed or Printed Name

Jason S. Ross, P.E.
Typed or Printed Name

Signature

Signature

Kentucky P.E. No. 20437



QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Fence line needs to be clear of small trees 6' to 10' and heavy brush on both sides of fence. Unable to walk next to fence in some areas of perimeter fence to check for washouts.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Several very small areas have occurred. Rock is already onsite. Currently waiting for equipment and will be corrected by site representatives.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Some sparse and bare areas have recently been seeded.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Three vent risers are leaning slightly.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Slight settlement around vent risers.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Extraction Well Pumps and associated Piping?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Leachate Junction Manhole?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Leachate Lift Station and Lift Station Pump?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Leachate Detection Points?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is debris or trash present? If Yes, describe.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Are strong odors present? If Yes, describe.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Alligator cracking evident various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is road access to OU2 and the treatment plant safe and efficient?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Jason S. Ross, P.E.
Typed or Printed Name

Signature

Signature

Kentucky P.E. No. 20437

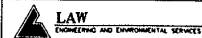


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SMITH'S FARM OPERAELE UNIT TWO
BULLITT COUNTY, KENTUCKY

SUBMITTED



APPROVED

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
3rd QUARTER 2001

SCALE
AS SHOWN

CONTRACT
12000-1-0006

FIGURE	REV	PAGE NO
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**APPENDIX D
FOURTH QUARTER 2001 INSPECTION REPORTS
OF UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Fence line needs to be clear of small trees 6' to 10' and heavy brush on both sides of fence. Unable to walk next to fence in some areas of perimeter fence to check for washouts. Tree down on fence. Ten foot section of fence damaged.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Sign west of creek down. Repaired.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<input checked="" type="checkbox"/> Yes No	Several very small areas have occurred. Rock is already onsite. To be corrected in early 2002.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	20' X 25' area distressed. To be reseeded in early 2002.

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
--	--	--

Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
--	--	--

5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <input checked="" type="checkbox"/> No	Small areas evident. No fluid.

Is surface damage evident?
If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.

Yes ☒ No

7. Leachate Collection System

Are any manholes leaking?
If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.

Yes ☒ No

Annual inspection.

Are any pipes leaking?
If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.

Yes ☒ No

Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	Yes No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes No	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <input checked="" type="checkbox"/> No	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Annual inspection
Is liquid present in secondary containment space?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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INSPECTOR

REVIEWED BY:

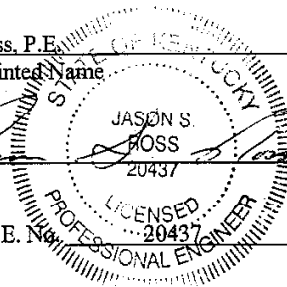
Ebbert B. Taylor
Typed or Printed Name

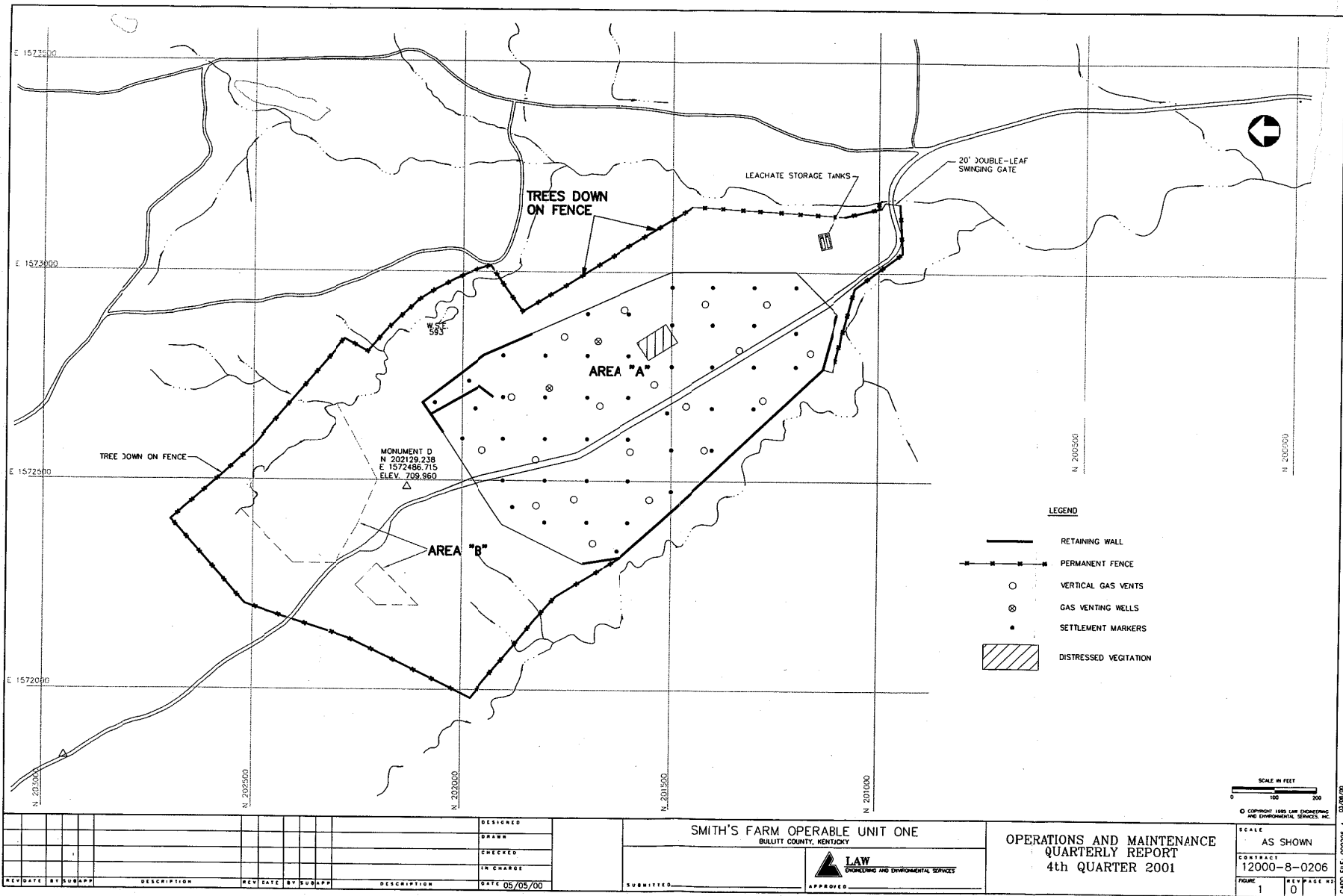
Ebbert B. Taylor
Signature

Jason S. Ross, P.E.
Typed or Printed Name

Jason S. Ross
Signature

Kentucky P.E. No. 20437





QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Fence line needs to be clear of small trees 6' to 10' and heavy brush on both sides of fence. Unable to walk next to fence in some areas of perimeter fence to check for washouts.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Several very small areas have occurred. Rock is already onsite. To be corrected in early 2002.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Small area at top of each down drain. To be corrected in early 2002.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes No	Some distressed areas to be reseeded in early 2002.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	Three vent risers are leaning slightly.
--	--	--

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Slight settlement around vent risers.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	---

Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Small area at top of each downdrain. To be corrected in early 2002.
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	<input checked="" type="checkbox"/> Yes No	Downdrains #1 and #2 sediment is building up at bottom beneath drainage membrane.
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
--	--	--

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <input checked="" type="checkbox"/> No	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes <input checked="" type="checkbox"/> No	MW-4 flowmeter not functioning properly. Ordered new chemical resistant meter.
--	--	--

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <input checked="" type="checkbox"/> No	
Extraction Well Pumps and associated Piping?	Yes <input checked="" type="checkbox"/> No	
Leachate Junction Manhole?	Yes <input checked="" type="checkbox"/> No	
Leachate Lift Station and Lift Station Pump?	Yes <input checked="" type="checkbox"/> No	
Leachate Detection Points?	Yes <input checked="" type="checkbox"/> No	
Leachate Collection Pipe Cleanouts and Vents?	Yes <input checked="" type="checkbox"/> No	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	Yes <input checked="" type="checkbox"/> No	

6. Infiltration Gallery

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is standing water present? If Yes, describe.	Yes <input checked="" type="checkbox"/> No	
Is debris or trash present? If Yes, describe.	<input checked="" type="checkbox"/> Yes No	Small amount of sludge on pipe walls an in counter.
Are strong odors present? If Yes, describe.	<input checked="" type="checkbox"/> Yes No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <input checked="" type="checkbox"/> No	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Alligator cracking evident various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <input checked="" type="checkbox"/> No	
Is road access to OU2 and the treatment plant safe and efficient?	<input checked="" type="checkbox"/> Yes No	

Smith's Farm Op Unit Two
Quarterly Report

Fourth Quarter 2001
January 31, 2001

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

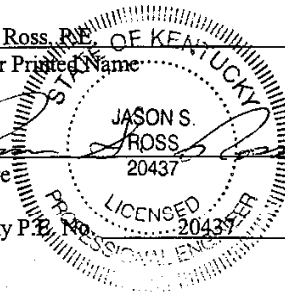
Ebbert B. Taylor
Typed or Printed Name

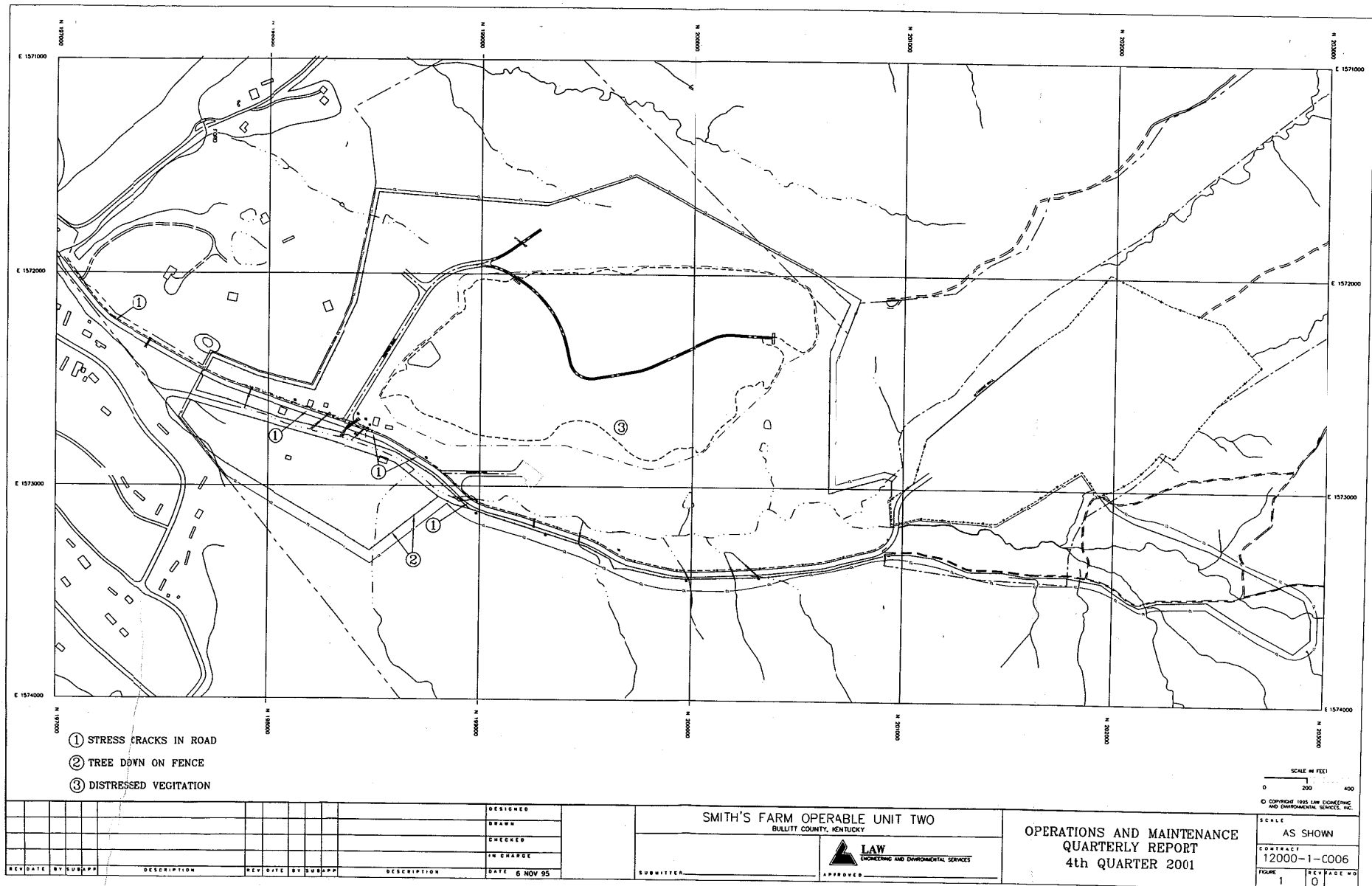

Signature

Jason S. Ross, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No. 20437





51A149 (12-94)

Commonwealth of Kentucky
REVENUE CABINET

**CERTIFICATE OF EXEMPTION
FOR
POLLUTION CONTROL FACILITIES**

Important—Certificate
not valid unless completed.

This certificate may be executed **only** for those purchases of tangible personal property which qualify for exemption under KRS 139.480(12). The certificate may be executed by either: (1) A holder of a Pollution Control Tax Exemption Certificate or (2) jointly by a contractor and the holder of a Pollution Control Tax Exemption Certificate in any case in which a contractor under contract with the certificate holder does, in fact, purchase such property.

THE UNDERSIGNED HEREBY CERTIFIES: That the materials and equipment to be purchased from

Name of Vendor

Address

will become a part of a pollution control facility at _____
Location of Facility

for which the Revenue Cabinet, as provided by KRS Chapter 224, has issued a Pollution Control Tax Exemption Certificate.

The undersigned agrees that in the event it is determined that any of the property described below is not tax-exempt, the undersigned will immediately report and pay the required tax measured by the purchase price of the property.

Cost of property to be purchased: _____

Description of property to be purchased: _____

Name of Holder of
Pollution Control Tax Exemption Certificate

Name of Contractor Under Contract with Holder of
Pollution Control Tax Exemption Certificate

Permit Account Number

Permit Account Number

By _____
Signature Title

By _____
Signature Title

Date _____

Date _____

Address _____

Address _____

Caution: A seller of tangible personal property accepting certificates shall be relieved from the sales and use tax only if he maintains a file of these certificates for a period of not less than four years as provided by KRS 139.720.

**APPENDIX A
FIRST QUARTER 2002 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<u>Yes</u> No	Fence line needs to be cleared of small trees (6' to 10') and heavy brush on both sides of fence. ➤ Initiated clearing this quarter.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	 ➤ Signs have been repaired.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Minor erosion problems. ➤ Repairing erosion problems as fence is cleared of trees and brush.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	Yes No	Several very small areas have developed. ➤ Repairing erosion problems as fence is cleared of trees and brush.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Heavy rainfall has created minor erosion problems. ➤ Repairing and filling on-going. All repairs will be completed by late May.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	A small area (30 X 40 ft.) is slightly distressed. ➤ Area is being re-seeded.

3. RCRA Cap (continued)

Questions	Response		Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes	<u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Some small washouts have developed next to the gabions on the west side of landfill. ➤ Repairs are on-going with completion expected by the end of May.
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
<p>Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Small areas are evident. However, no fluid is leaking from the joints.</p> <p>➤ Joints will be re-sealed by mid year.</p>

<p>Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.</p>	<p>Yes <u>No</u></p>
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7. Leachate Collection System

<p>Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection.</p>
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<p>Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection.</p>
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8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have surficial cracking. However, no large areas have developed.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	<u>Yes</u> No	Four of the 5 new culverts installed last fall are clogged with gravel and silt. ➤ Will clean and repair culverts this summer during the dry season.
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

8. Access Roads (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

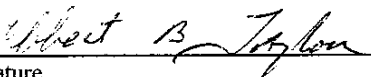
Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

INSPECTOR

REVIEWED BY:

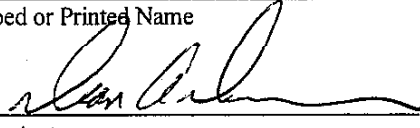
Ebbert B. Taylor

Typed or Printed Name

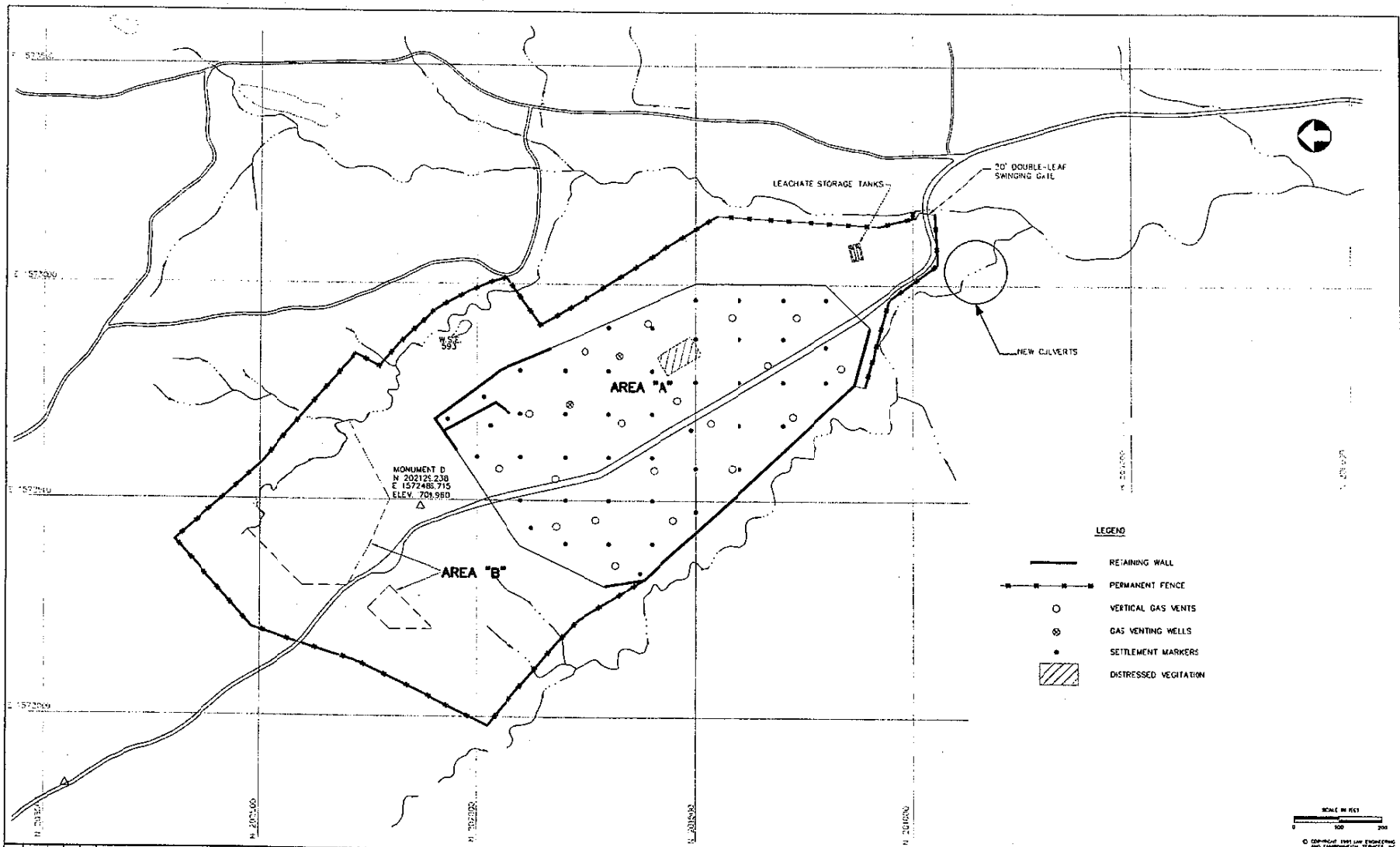

Signature

Dean A. Duncan, P.E.

Typed or Printed Name


Signature

Kentucky P.E. No. 16009



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
4/30/02	D. ARBOTT	DESIGNED	4/30/02	B. PERKINS	IN CHARGE

SMITH'S FARM OPERABLE UNIT ONE BULLITT COUNTY, KENTUCKY

LAW
LAW ENGINEERING AND CONSTRUCTION SERVICES, INC.
12000-8-0206
LOUISVILLE, KY 40203-1101

OPERATIONS AND MAINTENANCE QUARTERLY REPORT 1st QUARTER 2002

SCALE	AS SHOWN
CONTRACT	12000-8-0206
PAGE	1
OF	0

4/30/02

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	Fence line needs to be cleared of small trees (6' to 10') and heavy Brush. ➤ Initiated clearing this quarter.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems. ➤ Repairing erosion problems as fence is cleared of trees and brush.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small area at top of each down drain. ➤ Repairing and filling is on-going. All repairs should be completed by late May.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas have been re-seeded.

Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Three vent risers are leaning slightly.
		➤ Will monitor to determine if repairs are necessary.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around vent risers. ➤ Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small area at top of down-drains have minor erosion problems. ➤ Repairs are in-progress.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	<u>Yes</u> No	Sediment is accumulating in downdrains #1 and #2 beneath the drainage Membrane. ➤ Possible warranty issue.
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are routinely pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	
--	---------------	--

➤ Repaired MW-4 flowmeter.

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	<u>Yes</u> No	Small amount of sludge on pipe walls and in the counter. ➤ Not a problem, but will continue to monitor the situation.
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive Odors that are considered normal. ➤ Not a problem, but will continue to monitor.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Cracking evident at various locations along access road.
			➤ Not a significant problem at this time.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

➤ No additional comments.

INSPECTOR

REVIEWED BY:

Ehbert B. Taylor
Typed or Printed Name

Ehbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009

**APPENDIX B
SECOND QUARTER 2002 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	Fence line needs to be cleared of small trees (6 to 10 feet) and heavy brush on both sides of fence. ➤ Continue clearing this quarter.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems. ➤ Continue repairing erosion problems as fence is cleared of trees and brush.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u>	No	Several very small areas have developed. ➤ Continue repairing erosion problems as fence is cleared of trees and brush.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Heavy rainfall has created minor erosion problems. ➤ Repairing and filling on-going.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	A small area (30 X 40 ft.) is slightly distressed. ➤ Area has been re-seeded.

3. RCRA Cap (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Some small washouts have developed next to the gabions on the west side of landfill. ➤ Repairs to north side completed, repairs to south side on-going.
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	Small areas are evident, however, no fluid is leaking from the joints.

➤ Joints will be re-sealed by mid year.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
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8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s), upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have surficial cracking, however, no large areas have developed.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	➤ Will clean and repair culverts this summer during the dry season.
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Four of the 5 new culverts installed last fall are clogged with gravel and silt.
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	Fence line needs to be cleared of small trees (6 to 10 feet) and heavy brush. ➤ Continue clearing this quarter, also tree has knocked down fence, see location on map. Will repair in July.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems. ➤ Continue repairing erosion problems as fence is cleared of trees and brush.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small area at top of each downdrain. ➤ Repairing and filling is on- going. New heavy rains have made erosion problems on downdrains #1 to #5, will repair by next quarter.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas have been re-seeded. Will continue re-seeding process in fall.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Sediment at bottom of down drains #1 and #2, will clean out by next quarter.

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Vent risers are leaning slightly.
		➤ Will monitor to determine if repairs are necessary.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around vent risers. ➤ Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Erosion problems were repaired at top; bottom of downdrain is in repair at present time.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	<u>Yes</u> No	Sediment is accumulating in downdrains #1 and #2 beneath the drainage membrane.
		➤ Possible warranty issue.
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are routinely pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Pumps have been checked and are all operating properly, however, volume of leachate collected from well MW-2 is down by half since February 2002.
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5. Leachate Collection System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	<u>Yes</u> No	<p>Small amount of sludge on pipe walls and in the counter.</p> <p>➤ Not a problem, but will continue to monitor the situation.</p>
Are strong odors present? If Yes, describe.	<u>Yes</u> No	<p>Most well areas have distinctive odors that are considered normal.</p> <p>➤ Not a problem, but will continue to monitor.</p>
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Cracking evident at various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

➤ No additional comments.

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.

Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16909

**APPENDIX C
THIRD QUARTER 2002 INSPECTION REPORTS
OF UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	Fence line needs to be cleared of small trees (6 to 10 feet) and heavy brush on both sides of fence.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems. Continue repairing erosion problems as fence is cleared of trees and brush.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u>	No	Several very small areas have developed. Continue repairing erosion Problems as fence is cleared of trees and brush. All erosion problems greater than 6: X 6" were repaired.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
<p>Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p><u>Yes</u> No</p>	<p>Heavy rainfall has created minor erosion problems.</p> <p>Repairing and filling on-going.</p>
<p>Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.</p>	<p><u>Yes</u> No</p>	<p>A small area (30 X 40 ft.) is slightly distressed. Due to below normal August rainfall reseeding did not take. Re-seeded in September.</p>

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	<u>Yes</u> No	Due to below normal August rainfall there are some 1/2 inch shrinkage cracks.

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	
Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have surficial cracking, however, no large areas have developed.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	<u>Yes</u> No	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	Cleaning and repair of culverts in process at present Time.

8. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	Four of the 5 new culverts installed last fall are clogged with gravel and silt. In process of cleaning them out at present time.
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes	<u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies, valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

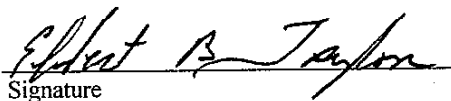
Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where in the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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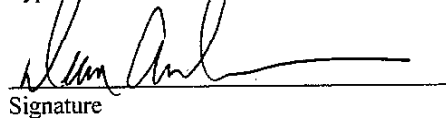
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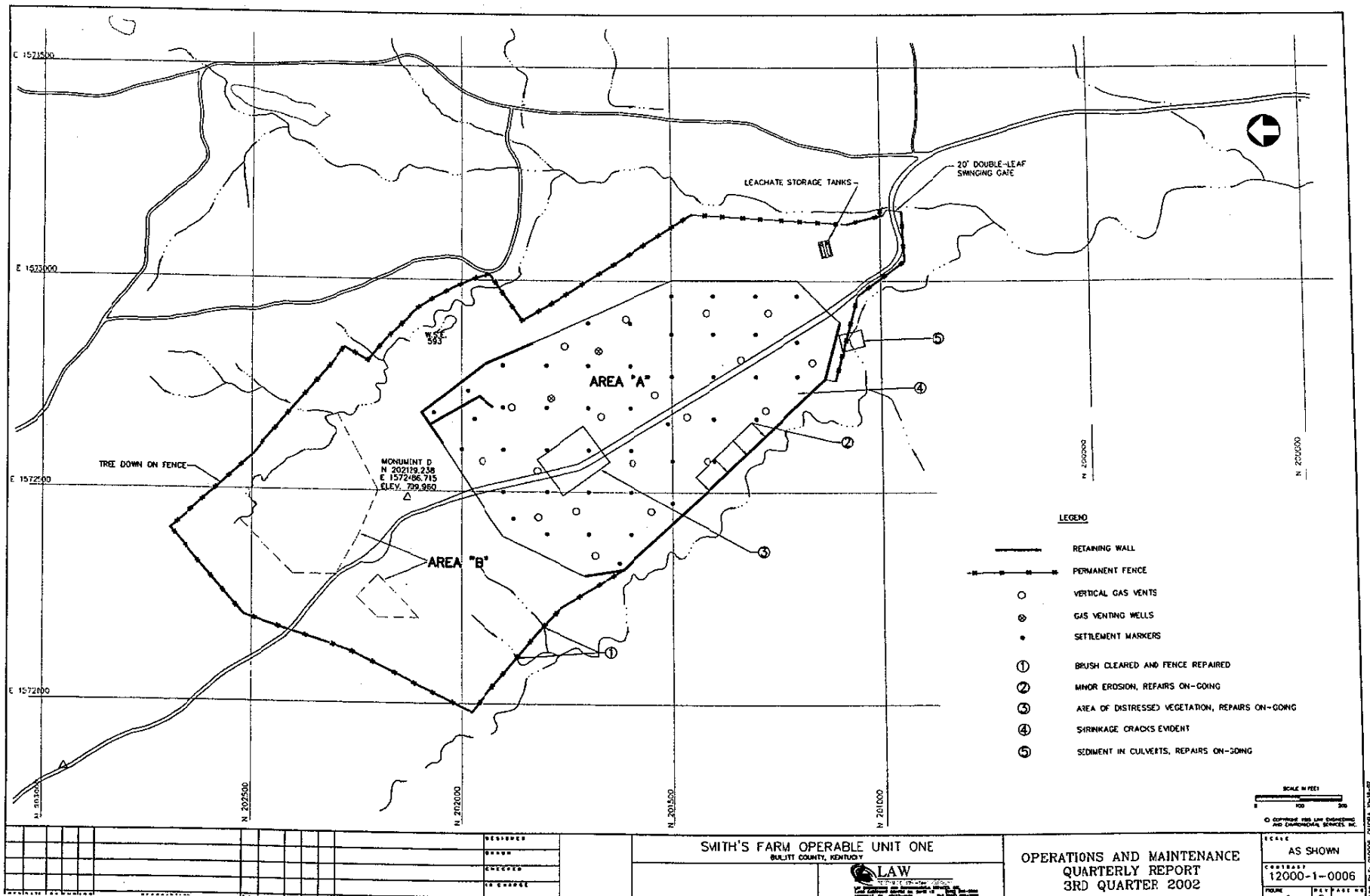
Ebbert B. Taylor
Typed or Printed Name


Signature

Dean A. Duncan, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No. 16009



QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	Fence line needs to be cleared of small trees (6 to 10 feet) and heavy brush. Tree removed and fence repaired in August.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Minor erosion problems. Continue repairing erosion problems as fence is cleared of trees and brush.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	Small areas of erosion at top of downdrains occurred in September, have since been repaired.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas have been re-seeded. Will continue re-seeding process in fall. Ninety percent of the areas are in the slope area.

2. Landfill Cap (continued)

Questions	Response		Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	<u>Yes</u>	No	Shrinkage cracks up to ¼ inch in width are present on the landfill cap, mostly on the terrace.
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	Sediment at bottom of down drains #1 and #2, will clean out by next quarter.

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes	<u>No</u>	Vent risers are leaning slightly.
			Will monitor to determine if repairs are necessary.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around vent risers. Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Bottom of downdrain repaired this quarter.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) membrane. or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	<u>Yes</u> No	Sediment is accumulating at the bottom of downdrains #1 and #2 beneath the drainage
		Possible warranty issue.
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	Manholes 1,4, and 5 periodically contain standing water due to rain infiltration and are routinely pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Pumps have been checked and are all operating properly, however, volume of leachate collected from well MW-2 is down by half since February 2002.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, Indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	<u>Yes</u>	No	Small amount of sludge on pipe walls. Not a problem, but will continue to monitor the situation.
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most wells have distinctive odors that are considered normal. Not a problem, but will continue to monitor.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Cracking evident at various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u> No	

8. General Comments or Observations

➤ No additional comments.

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor

Signature

Dean A. Duncan, P.E.

Typed or Printed Name

Dean A. Duncan

Signature

Kentucky P.F. No. 16009

**APPENDIX D
FOURTH QUARTER 2002 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<u>Yes</u>	No	Thirty foot section of fence in Area B was damaged due to a tree fall. Tree has been removed and fence has been repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	<u>Yes</u>	No	Warning signs missing in Area C, will replace by by next quarter.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, 6gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems but nothing larger than 6 x 6-inches in size.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	<u>Yes</u> No	Monument # 17 disturbed during mowing and surface drainage improvement activities. Monument reinstalled, but not resurveyed.
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Some small areas of erosion have occurred at top and mid-way down along sides of down drains 1 through 5 due to heavy rains in December. Will repair by next quarter, weather permitting.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas still observed. Will continue re-seeding and fertilizer process in the Spring.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Sediment at bottom of down drains 1 and 2, will clean out mid year.

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around vent risers. Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Erosion around down drains 1 through 5. Will repair by next quarter, weather permitting.
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes No	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes 1, 4 and 5 periodically contain standing water due to rain infiltration and are pumped out.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
---	---------------	--

Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Extraction well # 2 volume of leachate is down by $\frac{3}{4}$ since February 2002.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident at various locations along access road.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u> No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	<u>Yes</u> No	Twenty foot Section of Area B fence was damaged from a tree fall. Tree has been removed, fence has been repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas of erosion have occurred (6"x 6"), will be corrected as clearance of fence line continues this year.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred, will be corrected as clearance of fence continues this year.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas have been re-seeded and fertilized, will continue process in the Spring.

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	Northeast corner of retaining wall: slope failure 25 to 175 feet south of northeast corner, 6' from wall. Slope has up to 14" scarp at top. Photos attached. Methods to repair are being reviewed.
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	
Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	

7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	Yes No	Many areas have alligator cracking. No large areas noted.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes No	

8. Access Roads (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Culverts at south west perimeter of Area B: four of the five culvert pipes are clogged with debris, will be cleaned out mid year 2003.
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection.
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection.
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

INSPECTOR

REVIEWED BY:

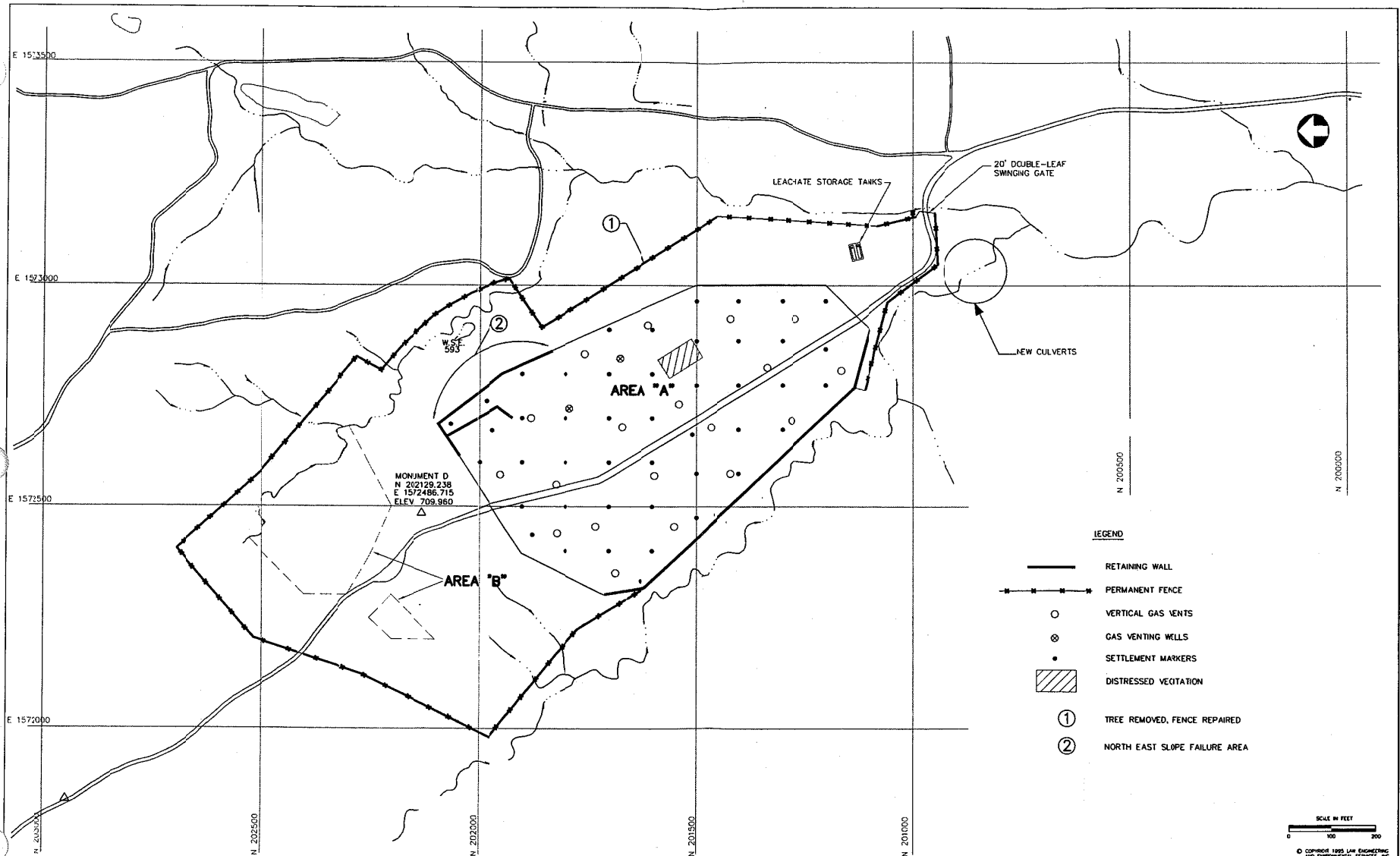
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

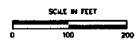
Dean A. Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- RETAINING WALL
- PERMANENT FENCE
- VERTICAL GAS VENTS
- GAS VENTING WELLS
- SETTLEMENT MARKERS
- DISTRESSED VEGETATION
- ① TREE REMOVED, FENCE REPAIRED
- ② NORTH EAST SLOPE FAILURE AREA



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DESIGNED	E. TAYLOR
DRAWN	G. HAYS
CHECKED	E. TAYLOR
IN CHARGE	N. SCHMITT
DATE	2/12/03

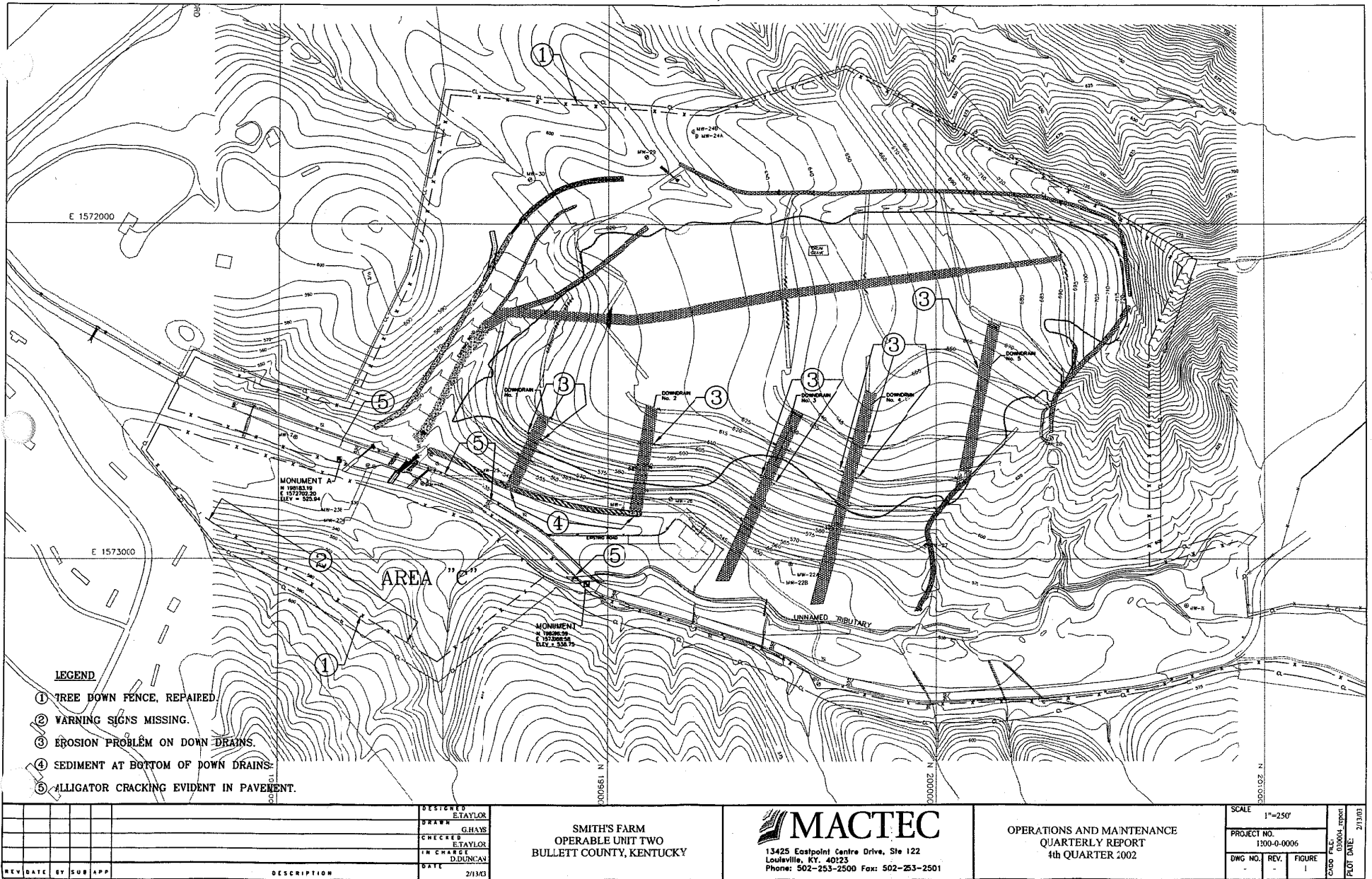
SMITH'S FARM OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY



OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
4th QUARTER 2002

SCALE	AS SHOWN
CONTRACT	12000-1-0006
FIGURE	1
REVISION NO.	0

CADD FILE: 010006_1.DWG



**APPENDIX A
FIRST QUARTER 2003 INSPECTION REPORTS
OF UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	Yes <u>No</u>	All sections of fence are repaired at present time.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6"), will be corrected when clearance of fence line continues this year. ➤ The remaining fence perimeter is very difficult to access.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred, will be corrected when clearance of fence continues this year. ➤ The remaining fence perimeter is very difficult to access.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Some sparse and bare areas have been re-seeded and fertilized, will continue process in Spring. ➤ Reseeding and fertilizing is currently in process.

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	<p>Northeast Corner Retaining wall: slope failure 25'to175' south of Northeast corner, 6' from wall. Slope has up to 14" scarp at top.</p> <p>➤ Method of repair currently being determined.</p>
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5. Surface Water Drainage and Erosion Control System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	No new joint leaking observed.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection.
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8. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	Yes	No	Many areas have alligator cracking. No large areas noted. ➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Culverts at south west perimeter of Area # B: four of the five culvert pipes are clogged with debris, will be cleaned out in mid year 2003.
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection.
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection.
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert B Taylor
Signature

Dean A Duncan, P.E.
Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	All sections of fence are repaired at present time.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map quarter. attached.	<u>Yes</u>	No	Area # C 10 Warning signs missing, will be replaced by next ➤ New signs are on order at present time.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems but nothing larger than 6"x6" in size.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes	<u>No</u>	All perimeter fence repaired at present time.

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	Erosion along downdrains has been repaired.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	Some sparse and bare areas still observed ,will continue to re-seed and fertilize in spring 2003. ➤ In process of reseeding at present time.

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Sediment at bottom of down drains#1 and 2, will clean out mid year.

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around vent risers. Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	The gabions between down drain # 4 and 5 are washed out underneath and are in need of emergency repairs to avoid falling into creek.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out. ➤ Manholes are checked every heavy rain fall.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Extraction well # 2 volume of leachate is down by 98% since January 2002. ➤ Extraction well #2 is producing est. 10 to 15 gals per month.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. > Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor

Signature

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan

Signature

Kentucky P.E. No. 16009

**APPENDIX B
SECOND QUARTER 2003 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	Yes	<u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Very small areas have occurred (6"x 6"), will be corrected when clearance of fence line continues this year. ➤ The remaining fence perimeter is very difficult to access.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u>	No	Several small areas have occurred, will be corrected when clearance of fence continues this year. ➤ The remaining fence perimeter is very difficult to access.
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3. RCRA Cap

<u>Questions</u>	<u>Response</u>		<u>Comments and Recommendations</u>
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	Northeast Corner Retaining wall: slope failure 25' to 175' south of Northeast corner, 6' from wall. Slope has up to 14" scarp at top. » To be repaired in 4 th Quarter.
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
<p>Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.</p>	<p>Yes <u>No</u></p>	

7. Leachate Collection System

<p>Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection.</p>
<p>Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection.</p>

8. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Many areas have alligator cracking. No large areas noted. ➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

8. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	Culverts at south west perimeter of Area # B: four of the five culvert pipes are clogged with debris, will be cleaned out in 3 rd Quarter of 2003.
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes	<u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection.
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection.
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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INSPECTOR

REVIEWED BY:

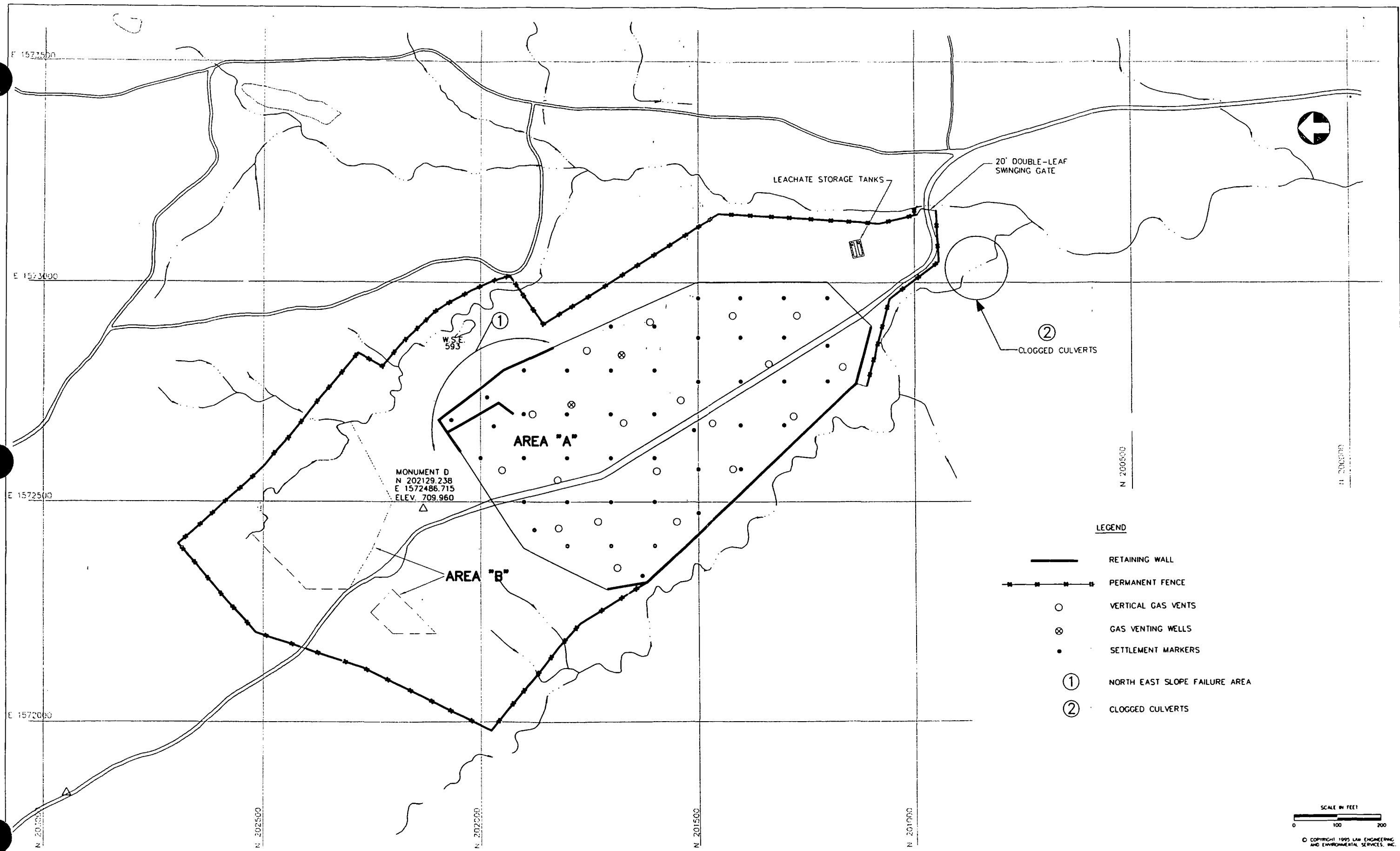
Ebbert B. Taylor
Typed or Printed Name

Ebbert B Taylor
Signature

Dean A Duncan, P.E.
Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- RETAINING WALL
- +—+—+— PERMANENT FENCE
- VERTICAL GAS VENTS
- ⊗ GAS VENTING WELLS
- SETTLEMENT MARKERS
- ① NORTH EAST SLOPE FAILURE AREA
- ② CLOGGED CULVERTS

DESIGNED	E. TAYLOR
DRAWN	G. HAYS
CHECKED	D. DUNCAN
IN CHARGE	D. DUNCAN
DATE	7/17/03

REV	DATE	BY	SUB APP	DESCRIPTION

SMITH'S FARM OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE QUARTERLY REPORT 2nd QUARTER 2003	
SCALE AS SHOWN	CONTRACT 6311-03-0004
FIGURE 1	REV PAGE NO 0

CADD FILE: 030004_2ND_QTR_2003

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes	<u>No</u>	All sections of fence are repaired at present time.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	<u>Yes</u>	No	New signs are in and will be installed in 3 rd Quarter, 2003.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Minor erosion problems but nothing larger than 6"x 6" in size.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes	<u>No</u>	All perimeter fence repaired at present time.

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Erosion along downdrains # 1, 2 & 3 to be repaired third quarter.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response		Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes	<u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
			➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	Slight settlement around one vent riser. Will monitor to determine if repairs are necessary.

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	The gabions between down drain # 4 and 5 are washed out underneath and are in need of emergency repairs to avoid falling into creek. Repairs scheduled for 4th Quarter of 2003.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ **Manholes are checked every heavy rain fall.**

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Meter malfunctioning, will be replaced.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

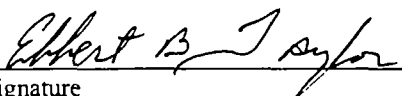
8. General Comments or Observations

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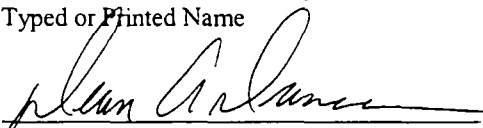
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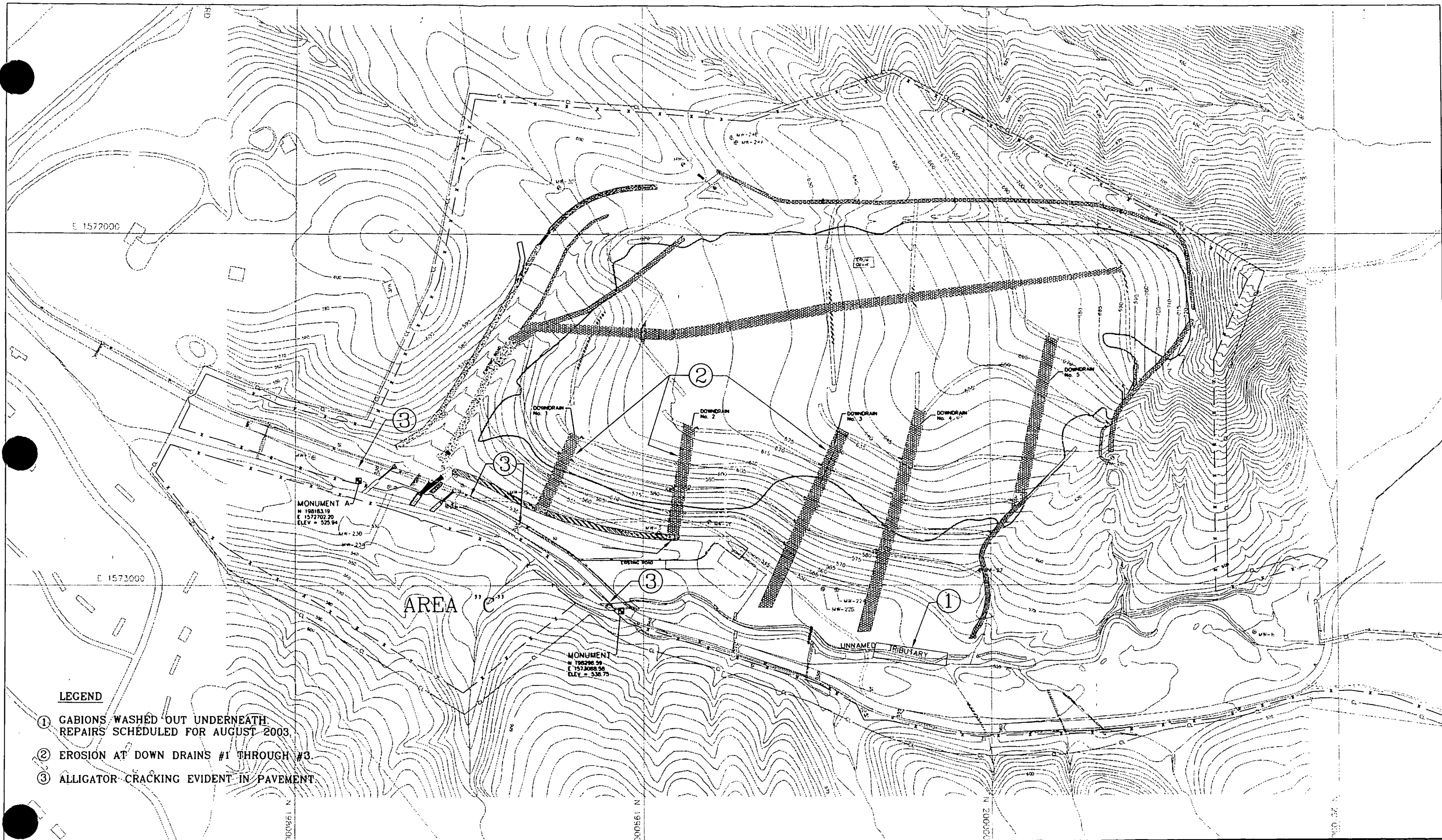

Signature

Dean A Duncan, P.E.

Typed or Printed Name


Signature

Kentucky P.E. No. 16009



DESIGNED E. TAYLOR	DATE 7/17/03
DRAWN G. HAYS	
CHECKED D. DUNCAN	
IN CHARGE D. DUNCAN	
REV	DATE
BY	SUB
APP	DESCRIPTION

SMITH'S FARM
 OPERABLE UNIT TWO
 BULLETT COUNTY, KENTUCKY

MACTEC
 13425 Eastpoint Centre Drive, Ste 122
 Louisville, KY. 40223
 Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
 QUARTERLY REPORT
 2nd QUARTER 2003

SCALE 1"=250'	PROJECT NO. 6311-03-0004
DWG NO.	REV.
FIGURE 1	PLOT DATE: 7/17/03

**APPENDIX C
THIRD QUARTER 2003 INSPECTION REPORTS
OF UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u>	No	Tree down on perimeter fence, to be repaired in Oct 2003.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Very small areas have occurred (6"x 6"), will continue to monitor. ➤ Much of the perimeter fence is very difficult to access.
2. Area "B"			
Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u>	No	Several small areas have occurred (6"x 6"), will continue to monitor. » Much of the perimeter fence is very difficult to access.

3. RCRA Cap

<u>Questions</u>	<u>Response</u>		<u>Comments and Recommendations</u>
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	Northeast corner retaining wall: slope failure 25'to175' south of Northeast corner, 6' from wall. Slope has up to 14" scarp at top. » Repairs began Sept 22, 2003.
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

6. Retaining Walls

Questions	Response		Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes	<u>No</u>	

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes	<u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes	<u>No</u>	Annual inspection.
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes	<u>No</u>	Annual inspection.
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8. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Many areas have alligator cracking. No large areas noted. ➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Culverts at south west perimeter of Area B: One of the five culvert pipes are half clogged with debris, will clean out in 4 th quarter 2003.

Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
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Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
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Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	
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9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection.
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection.
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

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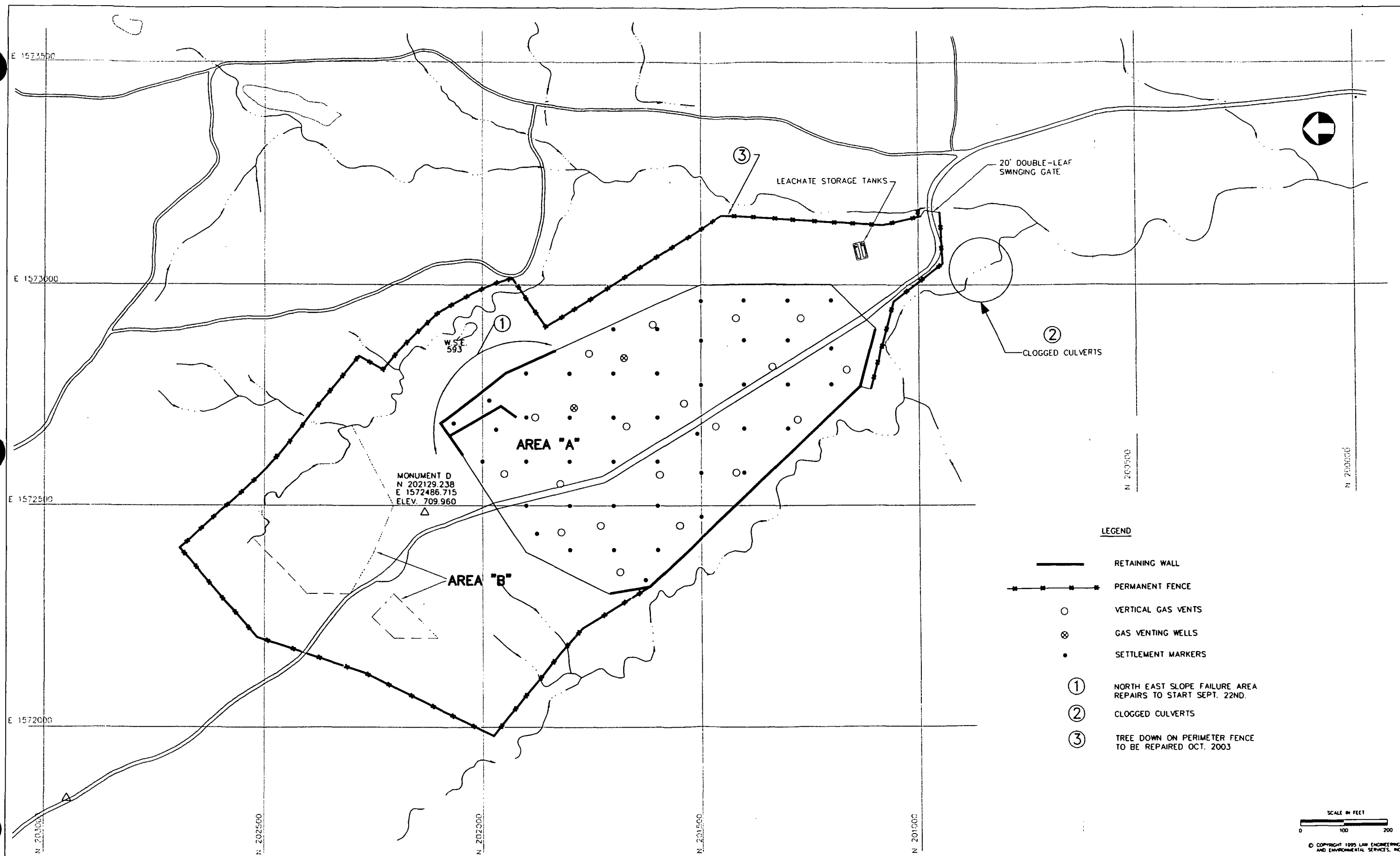
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Dean A Duncan
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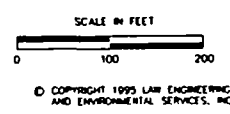
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LEGEND

- RETAINING WALL
- PERMANENT FENCE
- VERTICAL GAS VENTS
- ⊗ GAS VENTING WELLS
- SETTLEMENT MARKERS
- ① NORTH EAST SLOPE FAILURE AREA
REPAIRS TO START SEPT. 22ND.
- ② CLOGGED CULVERTS
- ③ TREE DOWN ON PERIMETER FENCE
TO BE REPAIRED OCT. 2003



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QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Minor erosion problems but nothing larger than 6"x 6" in size.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Erosion along downdrains # 1, 2, 3 & 4 due to recent rains. Will be repaired by mid -October 2003.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response		Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes	<u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
			> Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	The gabions between down drain # 4 and 5 are washed out underneath and are in need of emergency repairs to avoid falling into creek. >Repairs began Sept 22, 2003.
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u>	No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes	<u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u>	No	
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5. Leachate Collection System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. > Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s), upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than ¼ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor

Signature

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan

Signature

Kentucky P.E. No. 16009

**APPENDIX D
FOURTH QUARTER 2003 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u>	No	Two trees down on perimeter fence, to be repaired 1 st Quarter 2004.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate location(s) of erosion on a map attached.	<u>Yes</u>	No	Several small areas have occurred (6" x 6"). » The remaining fence perimeter is very difficult to access.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	Northeast corner of retaining wall: slope failure 25' to 175' south of northeast corner, 6' from wall. » Currently under repair.
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last inspected 1/9/04.
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last inspected 1/9/04.
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8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have alligator cracking. No large areas noted. ➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last inspected 1/9/04.
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last inspected 1/9/04.
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last inspected 1/9/04.

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

INSPECTOR

REVIEWED BY:

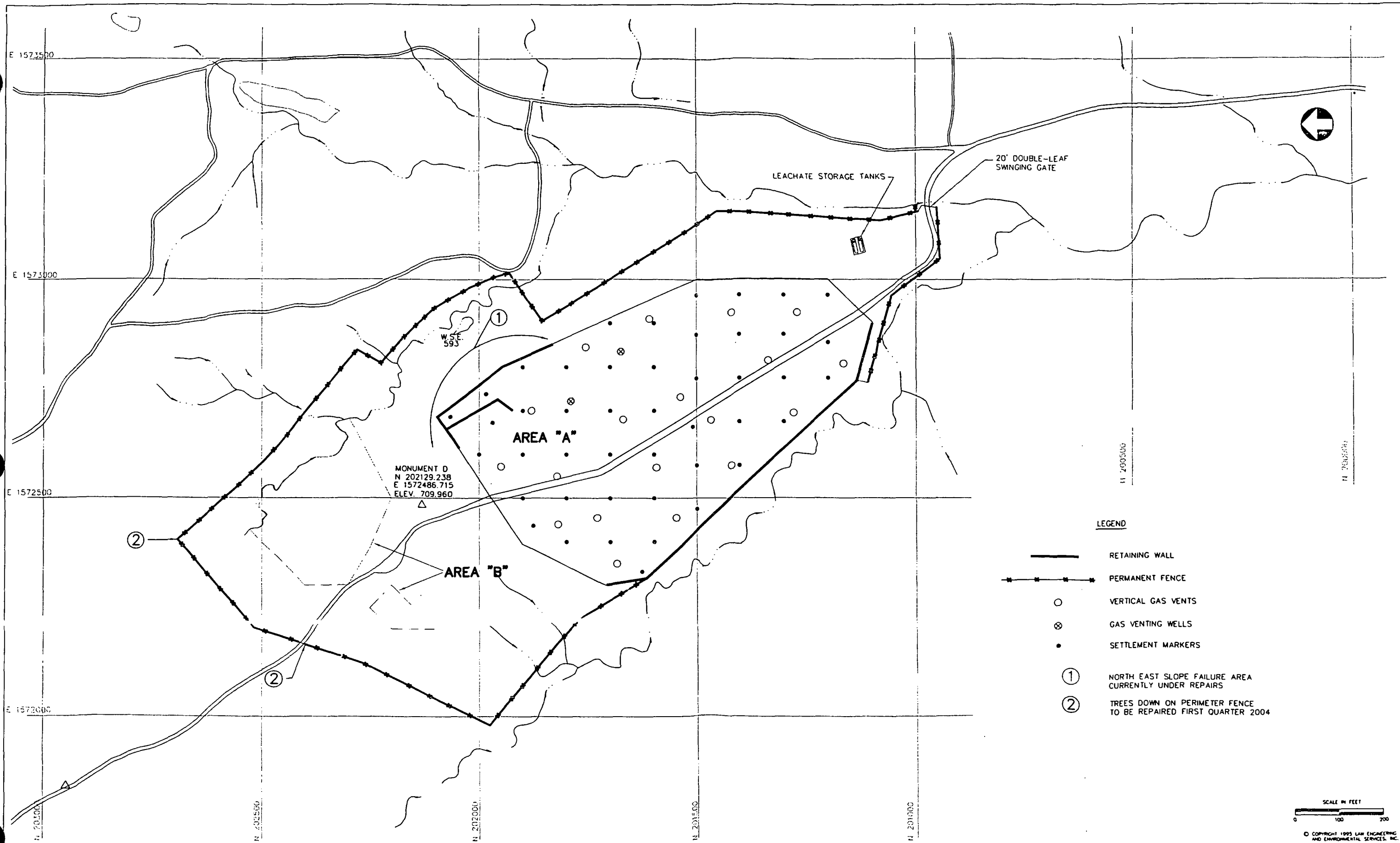
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

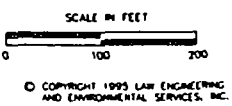
Dean A. Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- RETAINING WALL
- PERMANENT FENCE
- VERTICAL GAS VENTS
- GAS VENTING WELLS
- SETTLEMENT MARKERS
- ① NORTH EAST SLOPE FAILURE AREA CURRENTLY UNDER REPAIRS
- ② TREES DOWN ON PERIMETER FENCE TO BE REPAIRED FIRST QUARTER 2004



DESIGNED	E. TAYLOR
DRAWN	G. HAYS
CHECKED	D. DUNCAN
IN CHARGE	D. DUNCAN
DATE	7/17/03

REV	DATE	BY	SUB APP	DESCRIPTION

SMITH'S FARM OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Campbell Centre Drive, Ste 122
Louisville, KY 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
4th QUARTER 2003

SCALE	AS SHOWN
CONTRACT	6311-03-0004
FIGURE	1
REV	0
PAGE	NO

CADD FILE: 030004_4TH_QTR_2003

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Minor erosion problems but nothing larger than 6"x 6" in size.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	› Erosion along downdrains repaired 4 th quarter 2003.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
---	---------------	--

Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	
--	---------------	--

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Alligator cracking evident at various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u> No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert Taylor
Signature

Dean A Duncan, P.E.
Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009

**APPENDIX A
FIRST QUARTER 2004 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6") ➤ The remaining fence perimeter is very difficult to access, continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred. ➤ The remaining fence perimeter Is very difficult to access, continuing to repair, as needed.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	<p>Northeast Corner Retaining wall: slope failure 25' to 175' south of Northeast corner, 6' from wall. Slope has up to 14" scarp at top.</p> <p>➤ Currently under repair, work to resume 2nd quarter.</p>
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
--	---------------	---

Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
--	---------------	---

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have alligator cracking. No large areas noted. > Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last Inspected 1/9/04
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

INSPECTOR

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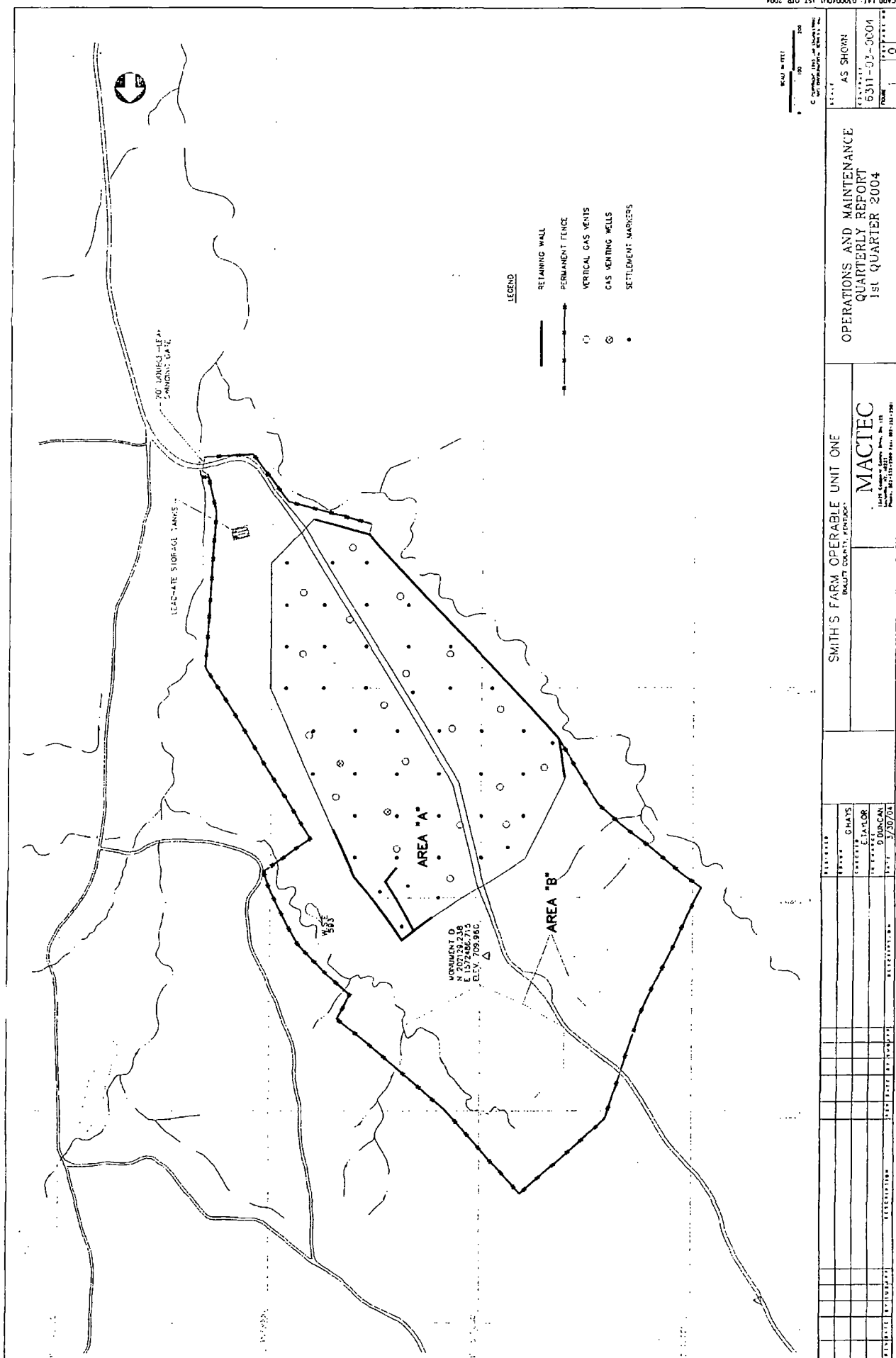
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009



QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Area # C west of existing drainage caused washout underneath fence 2'x 4' will be repaired 2nd Quarter 2004.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	Erosion along downdrains # 1, 2, 3 & 4 repaired 4 th quarter 2003.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor. ➤ Condition is same as last quarter.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ **Manholes are checked every heavy rain fall.**

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u> No	

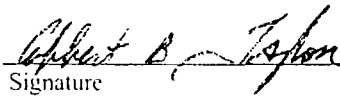
8. General Comments or Observations

INSPECTOR

REVIEWED BY:

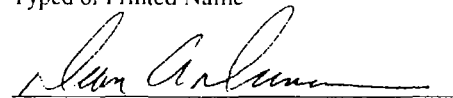
Ebbert B. Taylor

Typed or Printed Name

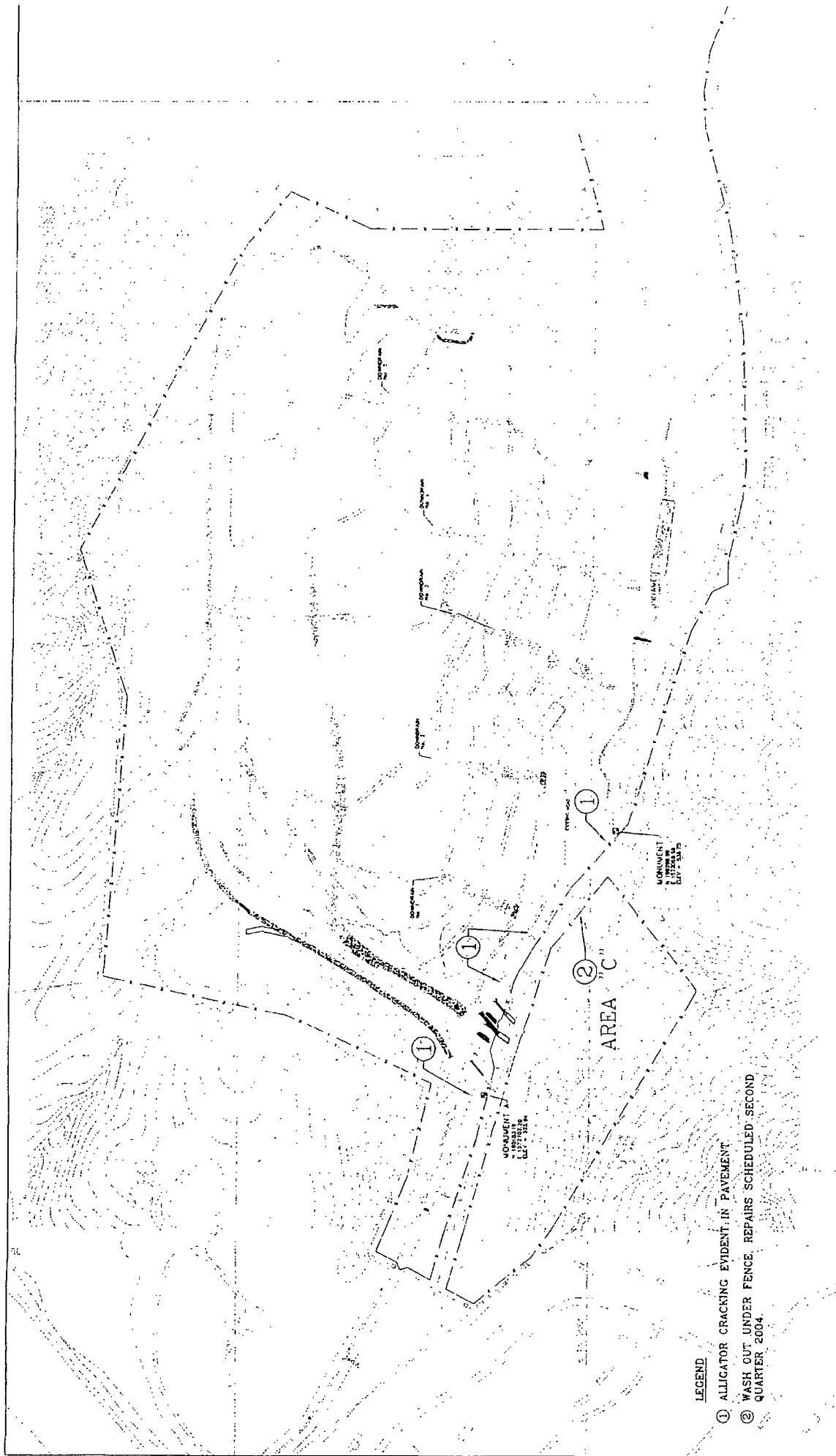

Signature

Dean A Duncan, P.E.

Typed or Printed Name


Signature

Kentucky P.E. No. 16009



- LEGEND**
- ① ALLIGATOR CRACKING EVIDENT IN PAVEMENT
 - ② WASH OUT UNDER FENCE. REPAIRS SCHEDULED SECOND QUARTER 2004.

DATE 10/1/04		SCALE 1"=250'		PROJECT NO. 6-11-01-004		CADD FILE 1	
OPERATIONS AND MAINTENANCE QUARTERLY REPORT 1st QUARTER 2004		MACTEC 13425 Eastport Centre Drive, Ste 122 Louisville, KY 40223 Phone: 502-253-2500 Fax: 502-253-2501		SMITH'S FARM OPERABLE UNIT TWO BULLITT COUNTY, KENTUCKY		SHEET 1 OF 1	
DATE 10/1/04		BY JCB/APP		DESCRIPTION 10/1/04		CHECKED JCB/APP	
DATE 10/1/04		BY JCB/APP		DESCRIPTION 10/1/04		CHECKED JCB/APP	

**APPENDIX B
SECOND QUARTER 2004 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u> No	Trees down on perimeter fence Area # C ➤ Will remove and repair in 3 rd quarter 2004
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6") ➤ The remaining fence perimeter is very difficult to access, continuing to repair, as needed

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred. ➤ 300' of fence line has been cleared of thick vegetation growth and the small erosion The remaining fence perimeter Is very difficult to access, continuing to repair, as needed.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	New markers were installed next to monuments early second quarter 2004, hard to see old markers when mowing cap perimeter.
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	No erosion, but at the south east section of cap, silt and growth have built up to where it is covering the gabion baskets. Silt and growth needs to be removed to below the top of the gabion baskets
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	Northeast Corner Retaining wall: Slope repairs completed end of June 2004.
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water Evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	<u>Yes</u> No	Channel on the west side of cap has been cleaned out from silt and small growth around the drainage pipes.
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	Culverts at south west perimeter of OU-1 area # B are starting to clog with sediment in two of five culverts.
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
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8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Many areas have alligator cracking. No large areas noted.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last Inspected 1/9/04
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

10. General Comments or Observations

Approximately 38 drums, 14 containing some amount of unknown contents, were identified several hundred feet north of the security fence in a steeply sloping wooded area. All the drums are outside the security fence and are located over steep slopes on either side of the fire break road. Eighteen drums are located on the northeast slope and 20 drums are located on the northwest slope. Organic vapors have been detected from some of the drums. A plan has been developed for testing, removal and disposal of the drums and contents. An access road to the drum area has been completed, and testing and removal is to begin in 3rd quarter.

INSPECTOR

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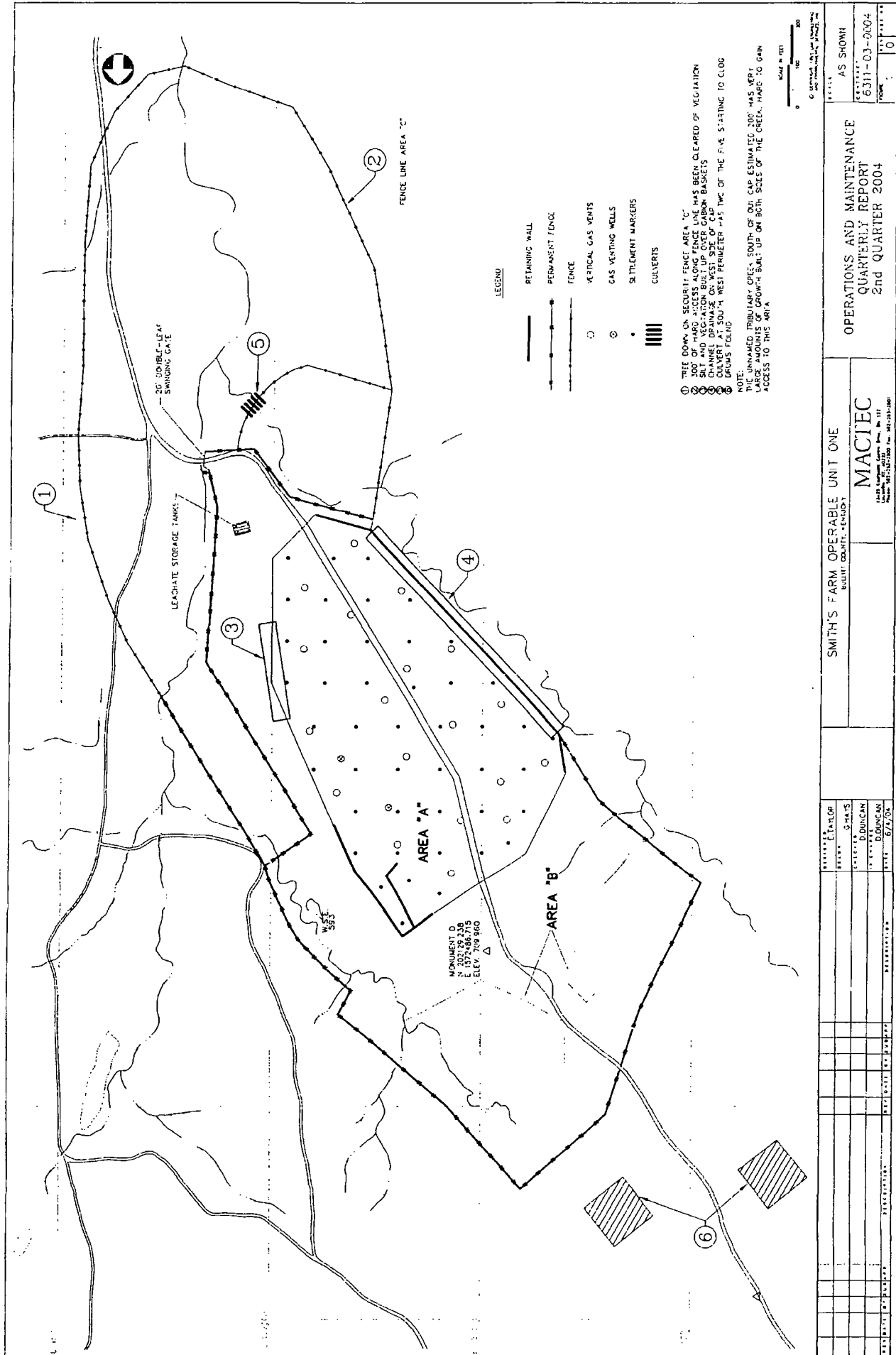
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009



QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	Tree fallen on fence, already removed and repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Area # C west of existing drainage ditch, washout underneath fence 2'x 4'. > Unable to repair 2nd quarter due to wet conditions, will repair in 3rd quarter 2004.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	New markers are being installed at present time; hard to see old markers when mowing cap perimeter.
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Erosion along down- drains 1, 2, 3, & 4 due to heavy rains in May and June. ➤ Will repair 3rd Quarter 2004.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor. ➤ Condition is same as last quarter.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Gabion washout, approx. 30' in creek, next to treatment plant. (see storm event report)
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Repairs currently underway.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	<u>Yes</u> No	A log is stuck in bridge culvert on access road. Will remove 3 rd quarter 2004.
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ **Manholes are checked every heavy rain fall.**

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Monthly leachate is down, all wells are working.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

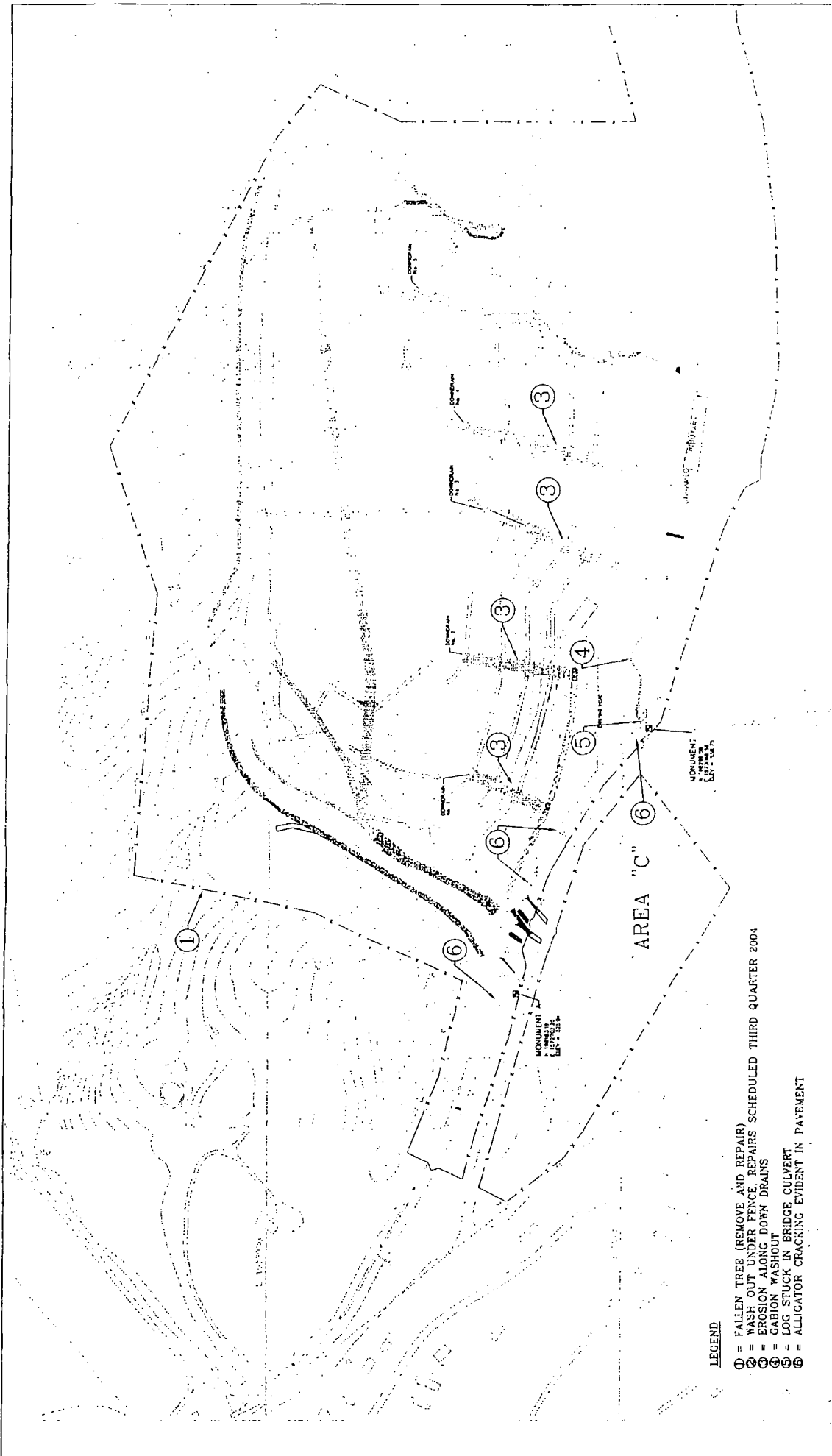
Ebbert B. Taylor
Typed or Printed Name

Ebbert Taylor
Signature

Dean A Duncan, P.E.
Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- ① = FALLEN TREE (REMOVE AND REPAIR)
- ② = WASH OUT UNDER FENCE, REPAIRS SCHEDULED THIRD QUARTER 2004
- ③ = EROSION ALONG DOWN DRAINS
- ④ = GABION WASHOUT
- ⑤ = LOG STUCK IN BRIDGE CULVERT
- ⑥ = ALLIGATOR CRACKING EVIDENT IN PAVEMENT

MACTEC 13425 Eastpoint Centre Drive, Ste 122 Louisville, KY 40223 Phone: 502-253-7300 Fax: 502-253-7350		OPERATIONS AND MAINTENANCE QUARTERLY REPORT 2nd QUARTER 2004		SCALE: 1"=250' PROJECT NO.: 04-1145-0004 DWG NO.: REV: FOUR	CNO FILE: PLOT DATE:																				
SMITH'S FARM OPERABLE UNIT TWO BULLITT COUNTY, KENTUCKY		<table border="1"> <thead> <tr> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>CHKD</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				DATE	DESCRIPTION	BY	CHKD																
DATE	DESCRIPTION	BY	CHKD																						

STORM EVENT INSPECTION REPORT FORM (FORM SE)

Date: 5-28-04

Report No. 1

Surface Water Drainage System:

Is erosion evident? Yes No

Do culverts need cleaning? Yes No

Is settlement evident? Yes No

Do ditches need cleaning? Yes No

Are obstacles evident? Yes No

Have any erosion control measures failed? Yes No

Are surfaces damaged? Yes No

Use an attached map to show areas of concern and describe below:

Bridge into Smith Farm and Mr. Meadows property, estimated 30' washout of bank surface.

(See photos #1 and 2)

Paved ditch at Sta # 532 next to creek has broken off into creek (see photos # 3 and 4)

Clogged culvert, OU-2 perimeter (see photo # 5)

Gabion washout in creek, OU-2 perimeter at Sta # 533 (see photos # 6, 7 and 8)

Log in bridge culvert drainage pathway (see photo # 9)

Clogged culverts at OU-1 perimeter (see photos # 10 and 11)

INSPECTOR

APPROVED BY:

Ebert Taylor

Dean A. Duncan, P.E.

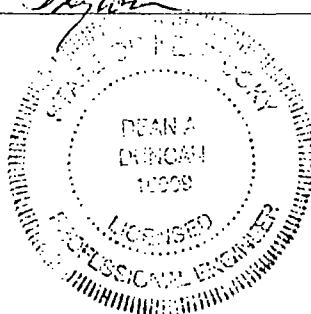
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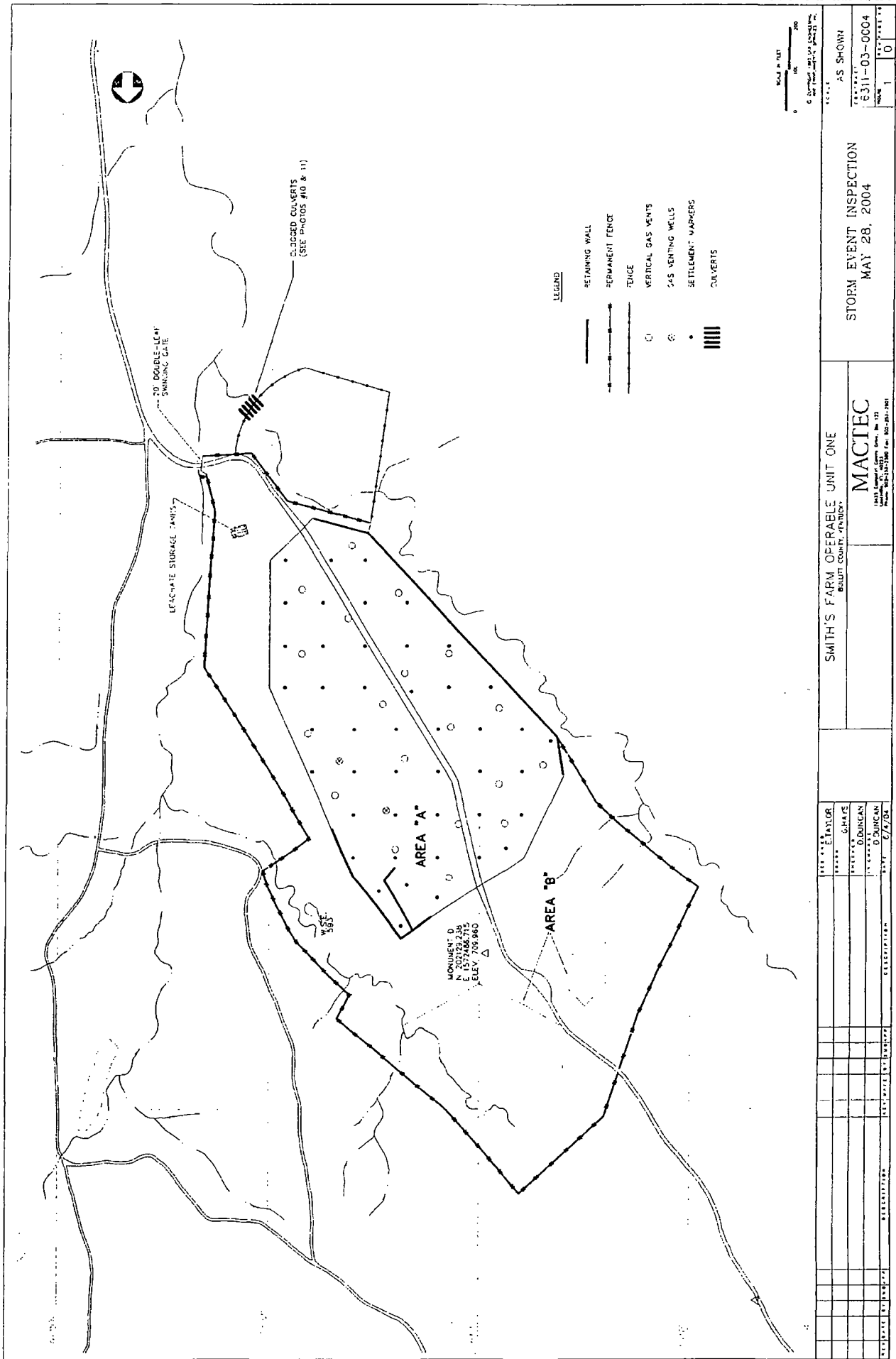
Ebert Taylor
Signature

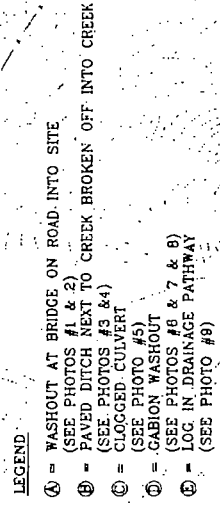
Dean A. Duncan
Signature

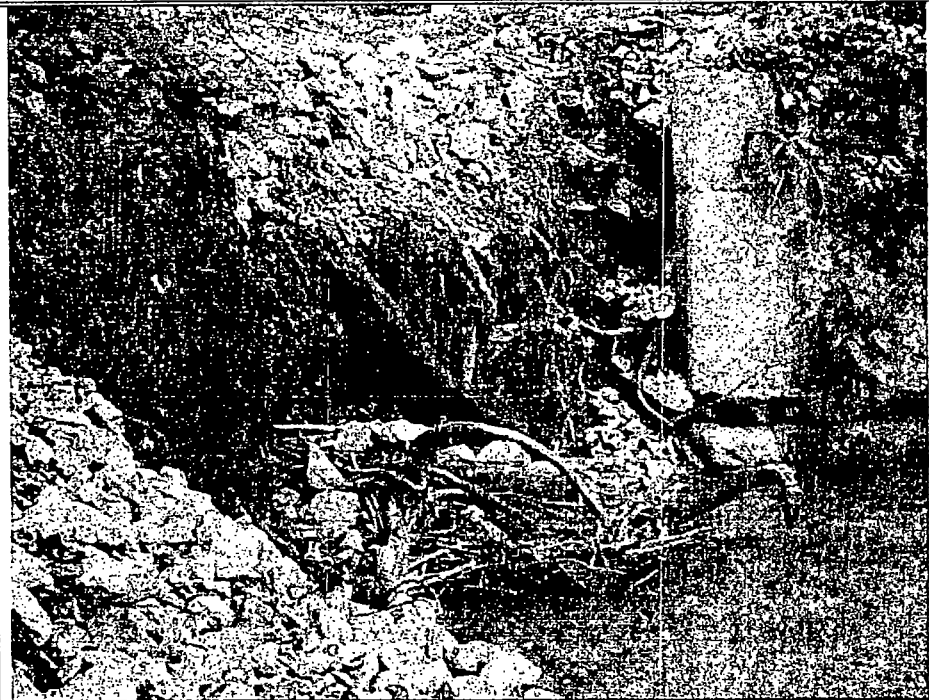
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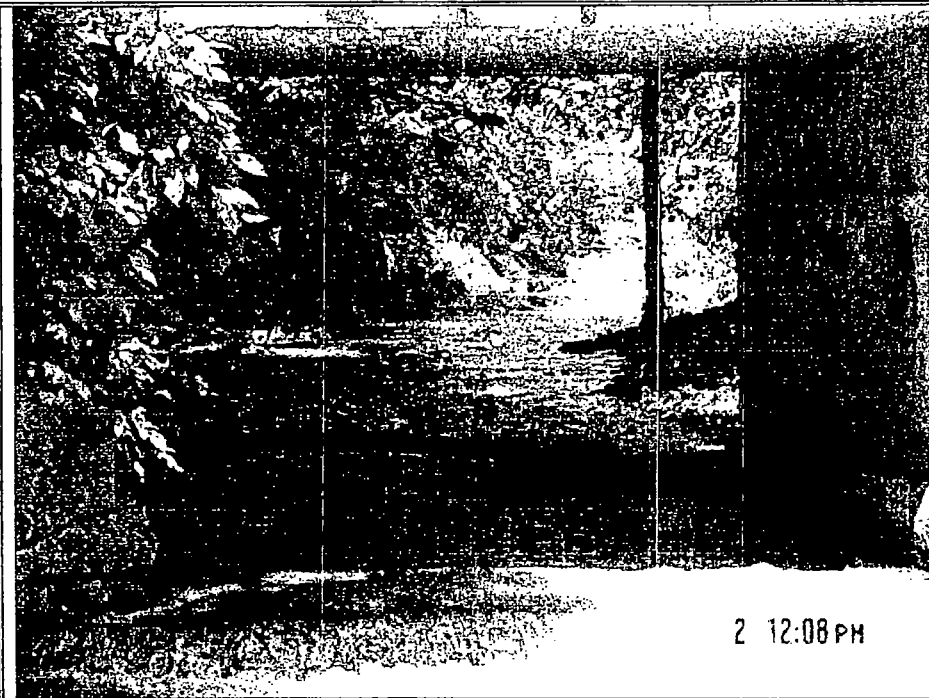
Kentucky PE No. 16009



[illegible]



Photograph 1: ENTRANCE BRIDGE WASHOUT



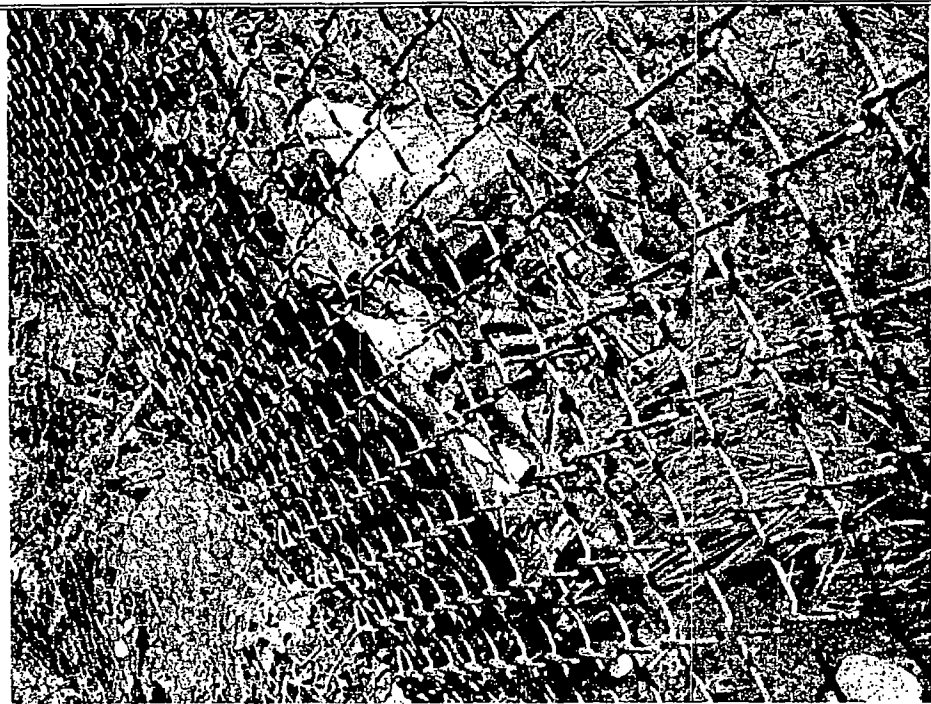
Photograph 2: ENTRANCE BRIDGE WASHOUT



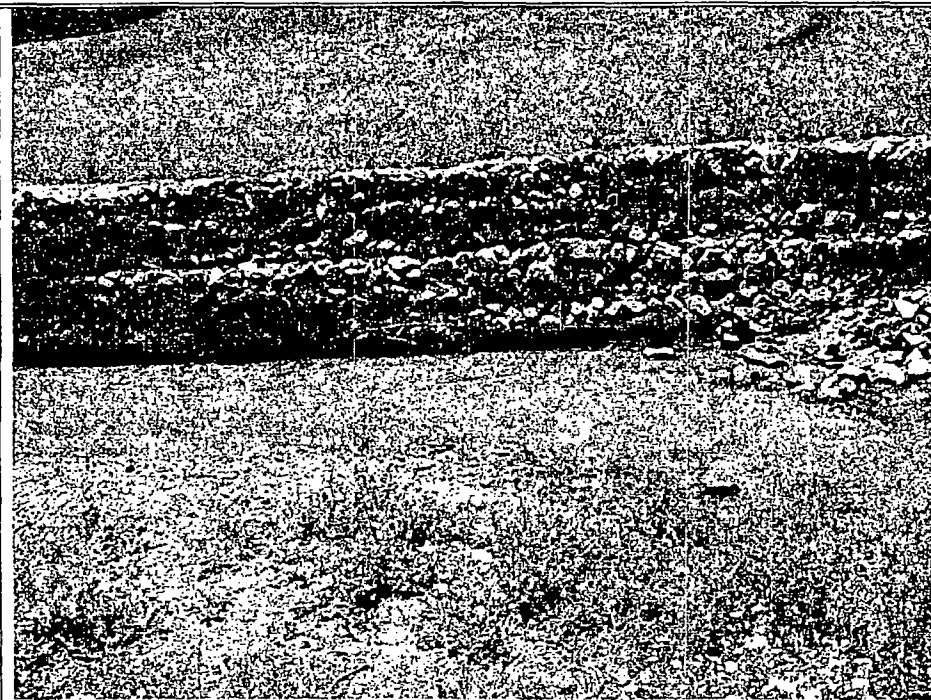
Photograph 3: BROKEN PAVED DITCH



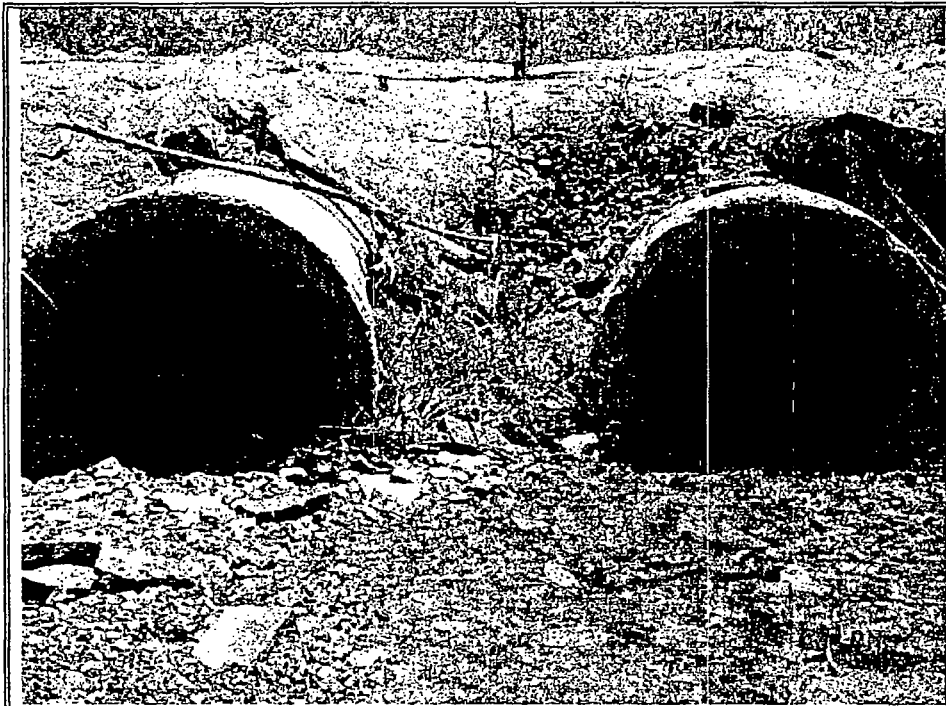
Photograph 4: BROKEN PAVED DITCH



Photograph 5: CLOGGED CULVERT



Photograph 6: GABION WASHOUT



Photograph 11: CLOGGED CULVERT

**APPENDIX C
THIRD QUARTER 2004 INSPECTION REPORTS
OF UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response		Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u>	No	Tree down on perimeter fence in northeast corner. ➤ Will remove and repair in 4th quarter 2004. Approx. 200' of fence line has been cleared of thick vegetation in N.E. section.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Very small areas have occurred (6"x 6") ➤ The remaining fence perimeter is very difficult to access, continuing to repair, as needed

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u>	No	Several small areas have occurred. ➤ repairs of small erosion were completed.
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3. RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	No erosion, but at the south east section of cap, silt and growth had built up to were it's over the gabion baskets. Silt and growth needs to be removed below the top of the cap perimeter design.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	
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**Northeast Corner Retaining wall:
Slope repairs completed
end of June 2004.**

5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water Evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	Culverts at south west perimeter of OU-1 area # B are starting to clog with sediment in two of the five culverts. ➤ Will be removed in late 4 th quarter
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>	
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/04
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8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Many areas have alligator cracking. No large areas noted.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection. Last Inspected 1/9/04
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection. Last Inspected 1/9/04
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection. Last Inspected 1/9/04

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	
Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	

10. General Comments or Observations

Approximately 39 drums, 14 containing some amount of unknown contents, were identified several hundred feet north of the security fence in a steeply sloping wooded area. All the drums were outside the security fence and were located over steep slopes on either side of the fire break road. Eighteen drums were located on the northeast slope and 20 drums were located on the northwest slope. Organic vapors have been detected from some of the drums. A plan was developed for testing, removal and disposal of the drums and contents. An access road to the drum area was completed and testing and removal/disposal is on-going.

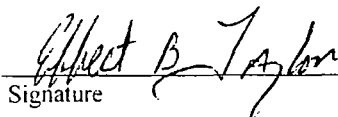
Currently, all 39 drums have been over-packed, as needed, and moved to the decon pad. A security fence has been built around decon pad while the drums await disposal.

INSPECTOR

REVIEWED BY:

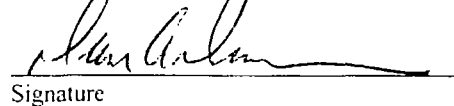
Ebbert B. Taylor

Typed or Printed Name


Signature

Dean A. Duncan, P.E.

Typed or Printed Name


Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	Area # C west of existing drainage ditch, washout underneath fence 2'x 4'. > Repairs were made in 3 rd quarter
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	Erosion along down- drains 1, 2, 3, & 4 due to heavy rains in May and June. ➤ Repairs were made in 3rd quarter 2004.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	Gabion washout, approx. 30' in creek, next to treatment plant. (see storm event report)
		➤ Repairs were made in 3 rd quarter 2004

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels or culverts deeper than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out. ➤ Manholes are checked every heavy rain fall.
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Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	<u>Yes</u> No	Monthly leachate is down, all wells are working.
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5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.

Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009

**APPENDIX D
FOURTH QUARTER 2004 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u> No	Tree down on perimeter fence, will be repaired 1st quarter 2005.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length). and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred. ➤ Continuing to repair.
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RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small erosion is evident on cap perimeter (3" x 3") in several locations.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	All joints need continued maintenance due to small voids observed, all voids have been repaired.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
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8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have alligator cracking. No large areas noted.
		➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	<u>Yes</u> No	Some ponding was observed on access road to OU-1, removed obstruction so drainage can occur. May need to install drainage pipes in these areas due handle heavy rains.

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last Inspected 1/17/05
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05

9. Leachate Storage Tanks (continued)

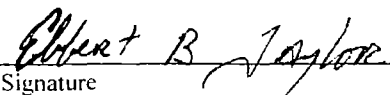
Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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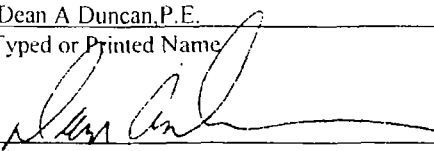
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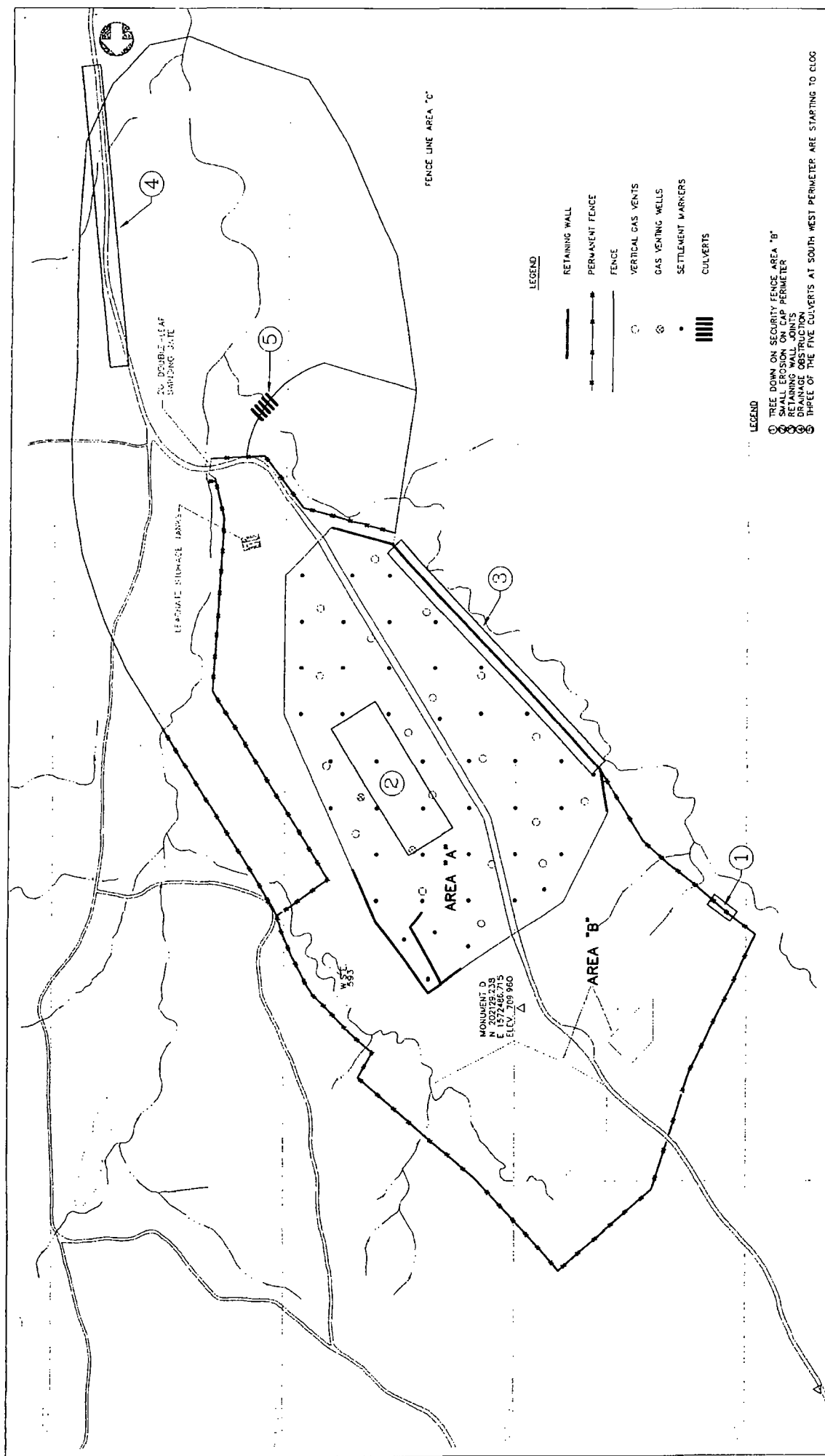
Ebbert B. Taylor
Typed or Printed Name


Signature

Dean A Duncan, P.E.
Typed or Printed Name


Signature

Kentucky P.E. No. 16009



LEGEND

- ① TREE DOWN ON SECURITY FENCE AREA "B"
- ② SMALL EROSION ON CAP PERIMETER
- ③ RETAINING WALL JOINTS
- ④ DRAINAGE OBSTRUCTION
- ⑤ THREE OF THE FIVE CULVERTS AT SOUTH W

[illegible]

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	Second entrance gate was cut by vandals, (4' x 4'), was repaired.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	Two warning signs were taken from the front gate and have been replaced.
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	<u>Yes</u>	No	Slight standing water is observed until 48 hrs after rainfall event. Weather permitting, fill will be installed in this section 1st quarter 2005 to limit ponding.
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Erosion along downdrains # 1, 2, 3 & 4 will be repaired in 1 st quarter 2005.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
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Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
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3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
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➤ **Condition is same as last
quarter.**

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	A section of the Unnamed tributary creek drainage ditch apron has broken off and is being washed out.
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	New solid bulkheads were installed to keep Gabion washouts from reoccurring in front of Plant building.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	Have repaired three separate sections of downdrains where rodents have eaten through the downdrain membrane and water was going underneath the downdrain membrane.
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out. ➤ Manholes are checked every heavy rain fall.
Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	The air lines going to the extraction wells are leaking underneath the ground, unable to locate leak thus far.
Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes <u>No</u>	Leachate volume from extraction wells is down, extraction well screens may be clogged.

5. Leachate Collection System (continued)

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert Taylor
Signature

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009

**APPENDIX A
FIRST QUARTER 2005 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	Yes <u>No</u>	Tree on perimeter fence was repaired in 1st Quarter 2005
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6") ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred. ➤ Continuing to repair, as needed.
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RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small erosion is evident on cap perimeter 3" x 3" in several locations ➤ Repairs scheduled for 2 nd Quarter 2005
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> <u>No</u>
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
<p>Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.</p>	<p>Yes <u>No</u></p>	<p>All joints needs continuing quartering maintenance due to voids observed, all void repairs have been small.</p>

<p>Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.</p>	<p>Yes <u>No</u></p>
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7. Leachate Collection System

<p>Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection. Last Inspected 1/17/05</p>
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<p>Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.</p>	<p>Yes <u>No</u></p>	<p>Annual inspection. Last Inspected 1/17/05</p>
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8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Many areas have alligator cracking. No large areas noted.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	<p>➤ Same as last quarter.</p>
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p><u>Yes</u> No</p>	<p>Some ponding was observed on access road to OU-1, removed obstruction so drainage can occur, will need to install drainage pipes in these areas for heavy rains.</p>

8. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes	<u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
	Yes	No	
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.		<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection. Last Inspected 1/17/05
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
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Are any valves leaking?
If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing); record the type of valve leaking, and describe where is the system the leak is occurring.

Yes No

Is damage evident?
If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.

Yes No

INSPECTOR

REVIEWED BY:

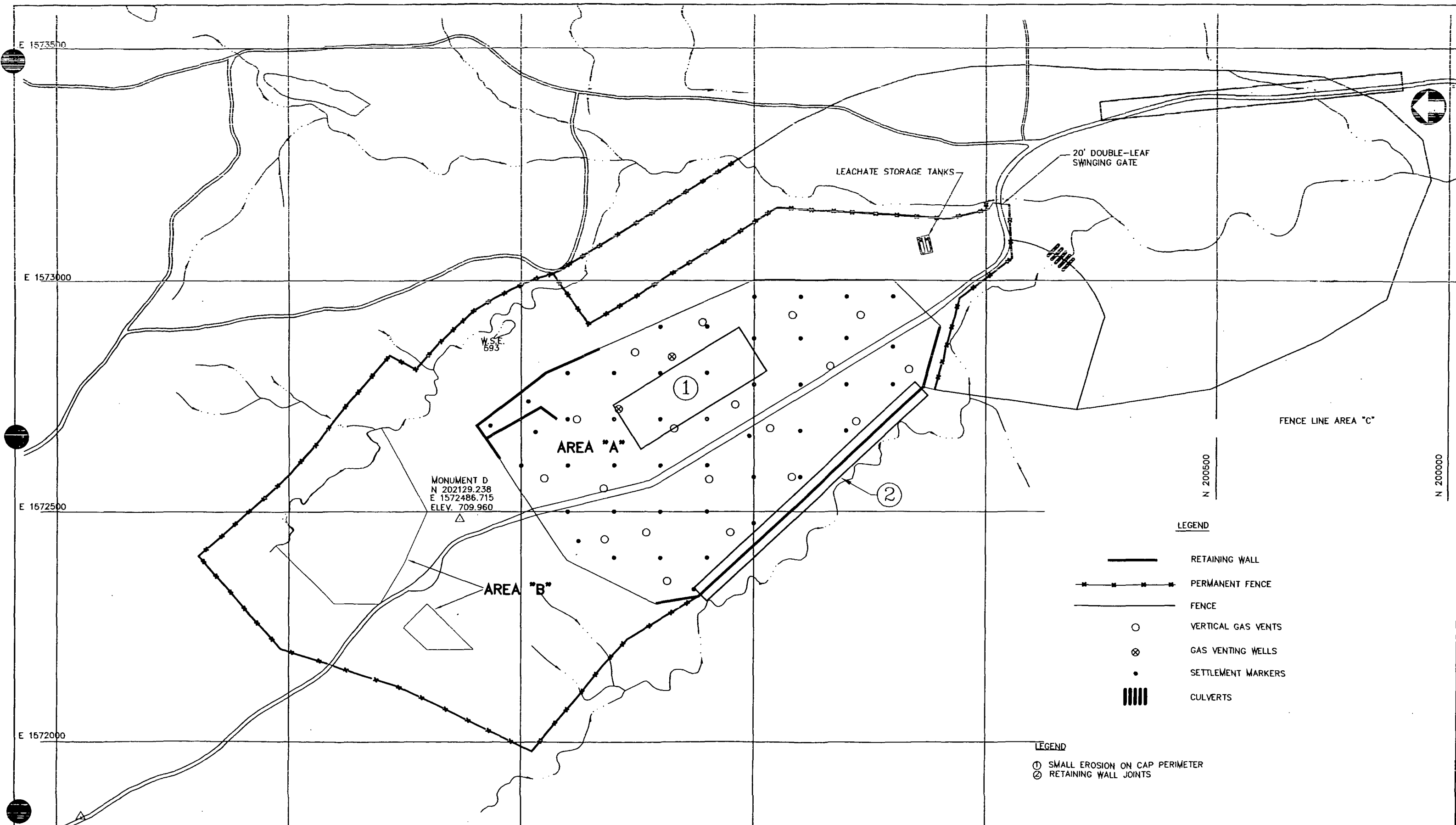
Ebbert B. Taylor
Typed or Printed Name

Dean A Duncan, P.E.
Typed or Printed Name

Ebbert B Taylor
Signature

Dean A Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- RETAINING WALL
- *—*—*— PERMANENT FENCE
- FENCE
- VERTICAL GAS VENTS
- ⊗ GAS VENTING WELLS
- SETTLEMENT MARKERS
- ||||| CULVERTS

LEGEND

- ① SMALL EROSION ON CAP PERIMETER
- ② RETAINING WALL JOINTS

DESIGNED E.TAYLOR	DATE 1/18/04
DRAWN G.HAYS	
CHECKED E.TAYLOR	
IN CHARGE D.DUNCAN	
REV	DATE
BY	SUB
APP	DESCRIPTION

SMITH'S FARM
OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
1st QUARTER 2005

SCALE 1"=200'		
PROJECT NO. 6311-03-0004		
DWG NO.	REV.	FIGURE
	-	2
CADD FILE: 0309H_1ST_QTR_001_414-05		
PLOT DATE: 4/14/05		

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	<u>Yes</u>	No	Slight standing water is observed until 48 hrs after rainfall. Will install fill in this area so ponding will not occur.
			➤ Repairs were made in 1 st Quarter 2005
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than ¼ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> No	A section of the Unnamed tributary creek drainage ditch apron has broken off. ➤ Repairs will be made in 2 nd Quarter 2005.
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	New solid bulk heads were installed to keep Gabion washouts from reoccurring in front of Plant Bldg. Solid bulk heads at present time are working after a 2" rainfall in February.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	<p>Have repaired three separate sections of downdrains where rodents have eaten through the downdrain membrane and water was going underneath the down drain membrane.</p> <p>➤ Down drains are checked every quarter for rodent damage.</p>
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u>	No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes	<u>No</u>	The air lines going to the extraction wells are leaking underneath the ground.
---	-----	-----------	--

➤ Located air leak, repairs will be Made in 2nd quarter 2005.

Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes	<u>No</u>	Possible extraction well screens are clogged with unknown material, leachate volume is down.
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➤ Same as last Quarter.

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

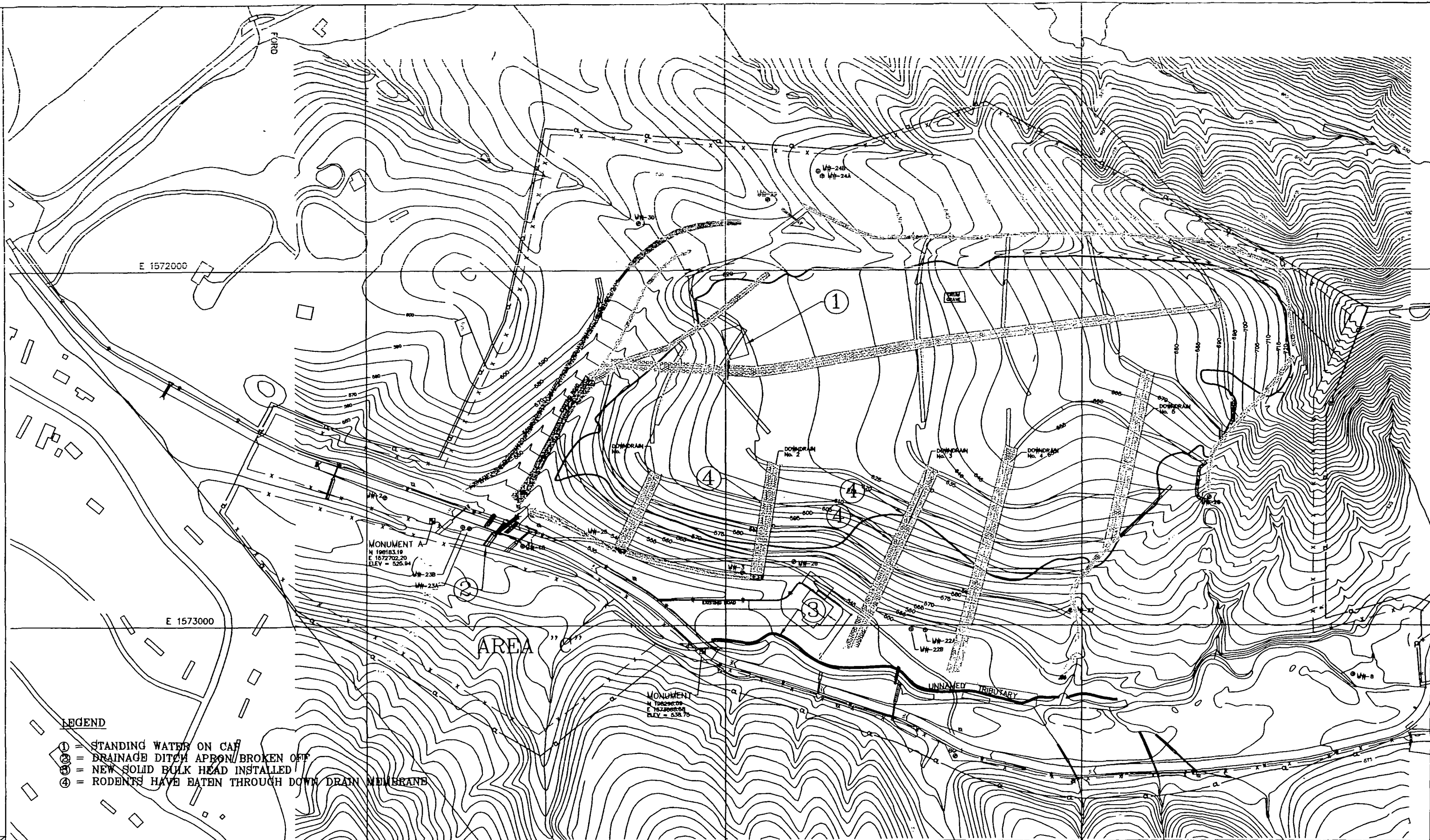
Ebbert B. Taylor
Typed or Printed Name

Dean A Duncan, P.E.
Typed or Printed Name

Ebbert B Taylor *SP1 with permission*
Signature

Dean A Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- ① = STANDING WATER ON CAN
- ② = DRAINAGE DITCH APRON BROKEN OFF
- ③ = NEW SOLID BULK HEAD INSTALLED
- ④ = RODENTS HAVE EATEN THROUGH DOWN DRAIN MEMBRANE

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED	E. TAYLOR
DRAWN	G. HAYS
CHECKED	E. TAYLOR
IN CHARGE	D. DUNCAN
DATE	1/18/05

SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
1st QUARTER 2005

SCALE			1"=250'		CADD FILE: D:\DWG\1ST_OTR_OUT_1-14-03	PLOT DATE: 1/18/05
PROJECT NO.			6311-03-0004			
DWG NO.	REV.	FIGURE				
-	-	1				

**APPENDIX B
SECOND QUARTER 2005 INSPECTION REPORTS
OP UNITS ONE AND TWO**

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u> No	Observed lots of empty alcohol containers and erosion from four wheeler tracks after weekends at north gate.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred no erosion is greater then 6"x 6" in size. ➤ Continuing to repair as needed.
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RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Small erosion areas (3" x 3") in several locations on cap perimeter were repaired 2 nd Quarter 2005.
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> <u>No</u>
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	Yes <u>No</u>	All joints needs continuing quartering maintenance due to voids observed, all voids have been small and repaired with rubber sealer compound.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
--	---------------	--

8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Many areas have alligator cracking. No large areas noted.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p><u>Yes</u> No</p>	<p>Some ponding was observed on access road to OU-1, removed obstruction so drainage can occur. Will need to install drainage pipes in these areas to drain heavy rains.</p> <p>➤ Drainage improvements were completed in 2nd Qtr</p>

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection. Last Inspected 1/17/05
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
--	---------------	--

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	At Northwest section of fence and property line, unable to maintain fence vegetation growth due to slope failure next to fence, approx. 150' in length.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response		Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u>	No	Broken concrete drainage ditch apron was repaired 2 nd Quarter 2005.
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	New solid bulk heads were installed to keep Gabion washouts from reoccurring in front of Plant building. Solid bulk heads at present time are still working.

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	<p>Have repaired three separate sections of downdrains where rodents have eaten through the downdrain membrane and water was going underneath the down drain membrane.</p> <p>➤ Still an on going problem, continuing to check every quarter for new rodent holes in downdrain membranes.</p>
Is sediment deposited in drainage channels or culverts deeper than 1/4 of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ **Manholes are checked every heavy rain fall.**

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	The air lines going to the extraction wells were repaired 2nd Quarter 2005.
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes <u>No</u>	Extraction well screens may be clogged with unknown material, leachate volume is down.
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➤ **Same as last Quarter**

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

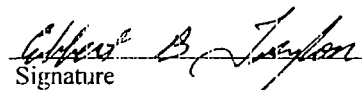
8. General Comments or Observations

INSPECTOR

REVIEWED BY:

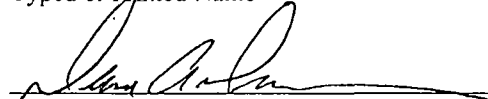
Ebbert B. Taylor

Typed or Printed Name

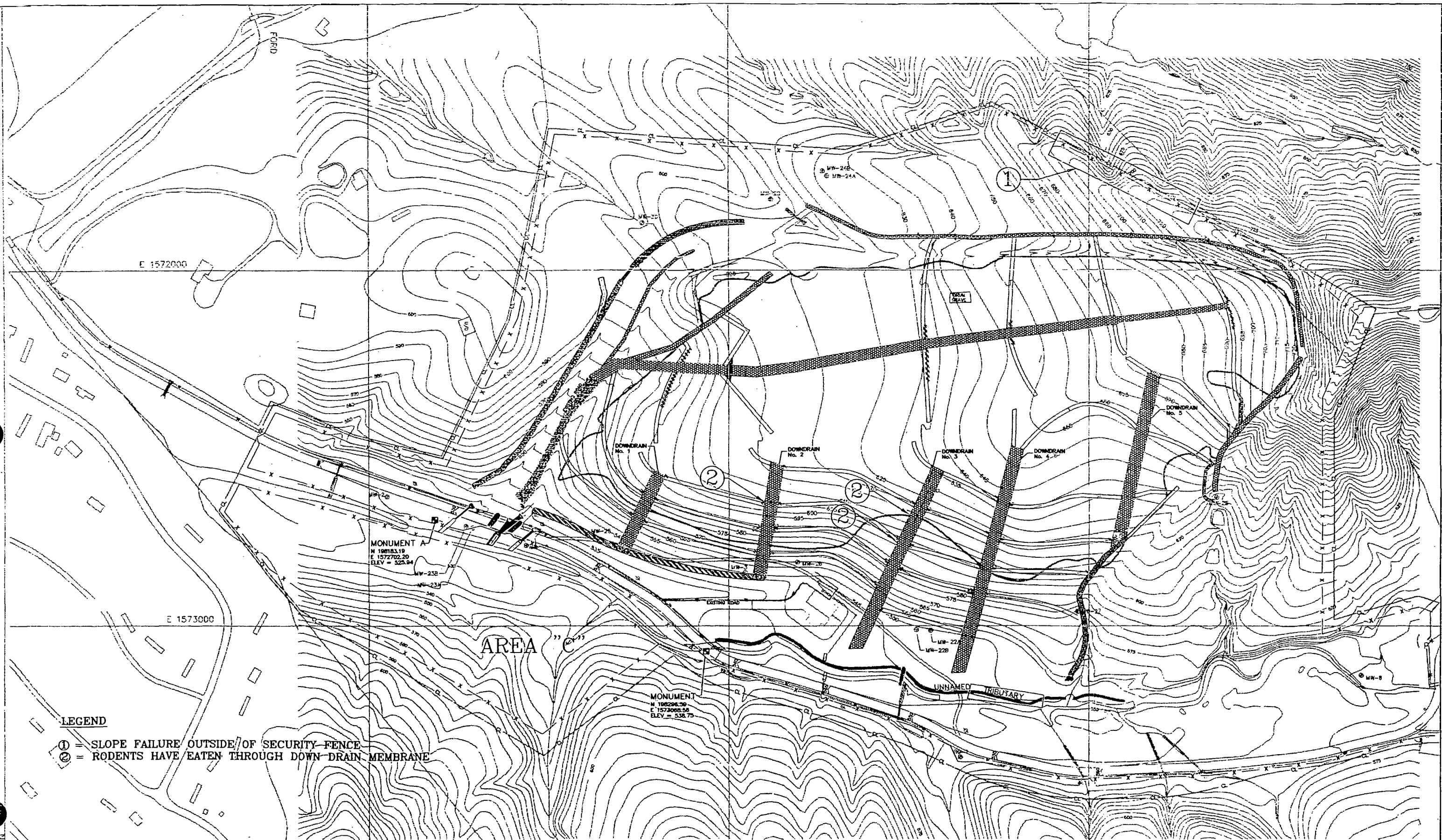

Signature

Dean A Duncan, P.E.

Typed or Printed Name


Signature

Kentucky P.E. No. 16009



REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED	E.TAYLOR
DRAWN	G.HAYS
CHECKED	E.TAYLOR
IN CHARGE	D.DUNCAN
DATE	8/12/05

SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
2nd QUARTER 2005

SCALE		1"=250'		CADD FILE: 330004_DWG_QTR_002_1-12-05	PLOT DATE: 8/12/05
PROJECT NO. 6311-03-0004					
DWG NO.	REV.	FIGURE			
-	-	1			

**APPENDIX C
THIRD QUARTER 2005 INSPECTION REPORTS
OP UNITS ONE AND TWO**

➤ **QUARTERLY INSPECTION REPORT (FORM QIR)**

1. Security Fence

<u>Questions</u>	<u>Response</u>		<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u>	No	Observed lots of empty alcohol containers and four wheeler erosion after weekends at North gate. ➤ Additional no trespassing signs were installed in this area.
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u>	No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u>	No	Several small areas have occurred, no erosion is greater then 6"x 6" in size. ➤ Continuing to repair, as needed.
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RCRA Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> <u>No</u>	
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response		Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	<u>Yes</u> No	All joints needs continuing quarterly maintenance due to small voids observed. Voids are being repaired with rubber sealer compound, mostly on the surface.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
--	---------------	--

Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/17/05
--	---------------	--

8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> <u>No</u></p>	<p>Many areas have alligator cracking. No large areas noted.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response		Comments and Recommendations
	Yes	No	
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.		<u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes	<u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u>	No	Annual inspection. Last Inspected 1/17/05
Is liquid present in secondary containment space?	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes	<u>No</u>	Annual inspection. Last Inspected 1/17/05

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
--	---------------	--

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections section of or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Erosion at northwest property line fence, was repaired this quarter.
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor. ➤ Condition is same as last quarter.
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3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	<u>Yes</u> No	Have repaired many separate sections of downdrains were rodents have eaten through the downdrain membrane and water was going underneath the down drain membrane. ➤ Still an on going problem, checking every quarter for new rodent holes in downdrain membranes.
Is sediment deposited in drainage channels or culverts deeper than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u>	No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
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➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes	<u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes	<u>No</u>	
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Extraction well screens may be clogged, leachate volume is down.

➤ Same as last Quarter

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident at various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

Ebbert B. Taylor
Typed or Printed Name

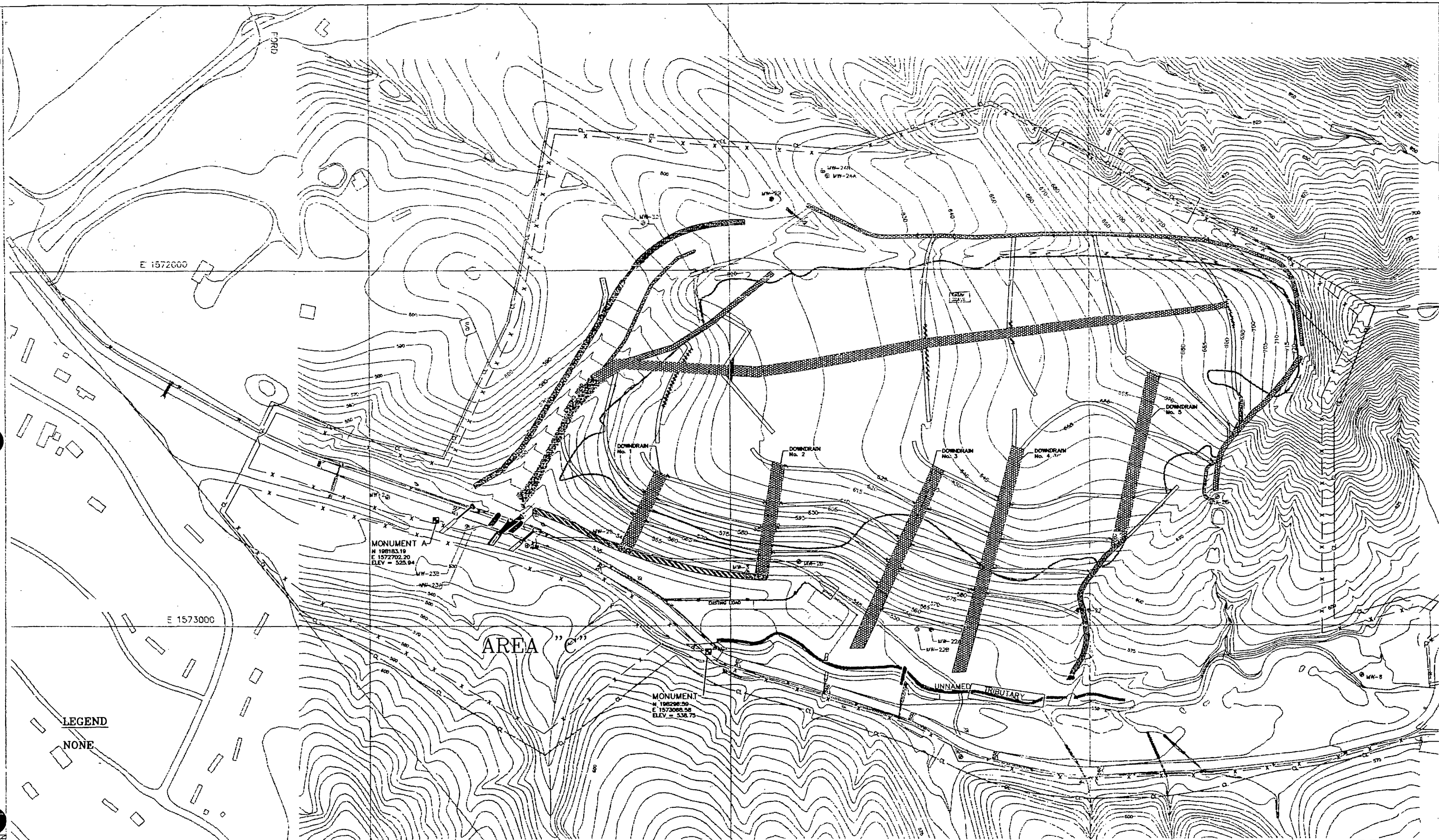
Ebbert B. Taylor
Signature

REVIEWED BY:

Dean A Duncan, P.E.
Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009



REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED
E. TAYLOR
DRAWN
G. HAYS
CHECKED
E. TAYLOR
IN CHARGE
D. DUNCAN
DATE
10/10/05

SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
3rd QUARTER 2005

SCALE 1"=250'		PROJECT NO. 6311-03-0004	FIGURE 1	CADD FILE: 00004_BRC_QTR_002_10-10-05	PLOT DATE: 10/10/05
DWG NO.	REV.				

APPENDIX D
FOURTH QUARTER 2005 INSPECTION REPORTS
OP UNITS ONE AND TWO

➤ **QUARTERLY INSPECTION REPORT (FORM QIR)**

1. Security Fence

<u>Questions</u>	<u>Response</u>	<u>Comments and Recommendations</u>
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u> No	Observed lots of empty alcoholic beverage containers and four wheeler erosion after weekends at North gate. ➤ Continuing to address this issue with trespassers
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached:	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred, no erosion is greater then 6"x 6" in size. ➤ Continuing to repair, as needed.
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RCRA Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
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Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
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5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> <u>No</u>	
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5. Surface Water Drainage and Erosion Control System (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	<u>Yes</u> No	All joints needs continuing quarterly maintenance due to small voids observed. Voids are being repaired with rubber sealer compound, mostly on the surface.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/06
--	---------------	---

Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06
--	---------------	--

8. Access Roads

Questions	Response	Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u> No	Many areas have alligator cracking. No large areas noted. ➤ Same as last quarter.
Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last Inspected 1/09/06
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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INSPECTOR

REVIEWED BY:

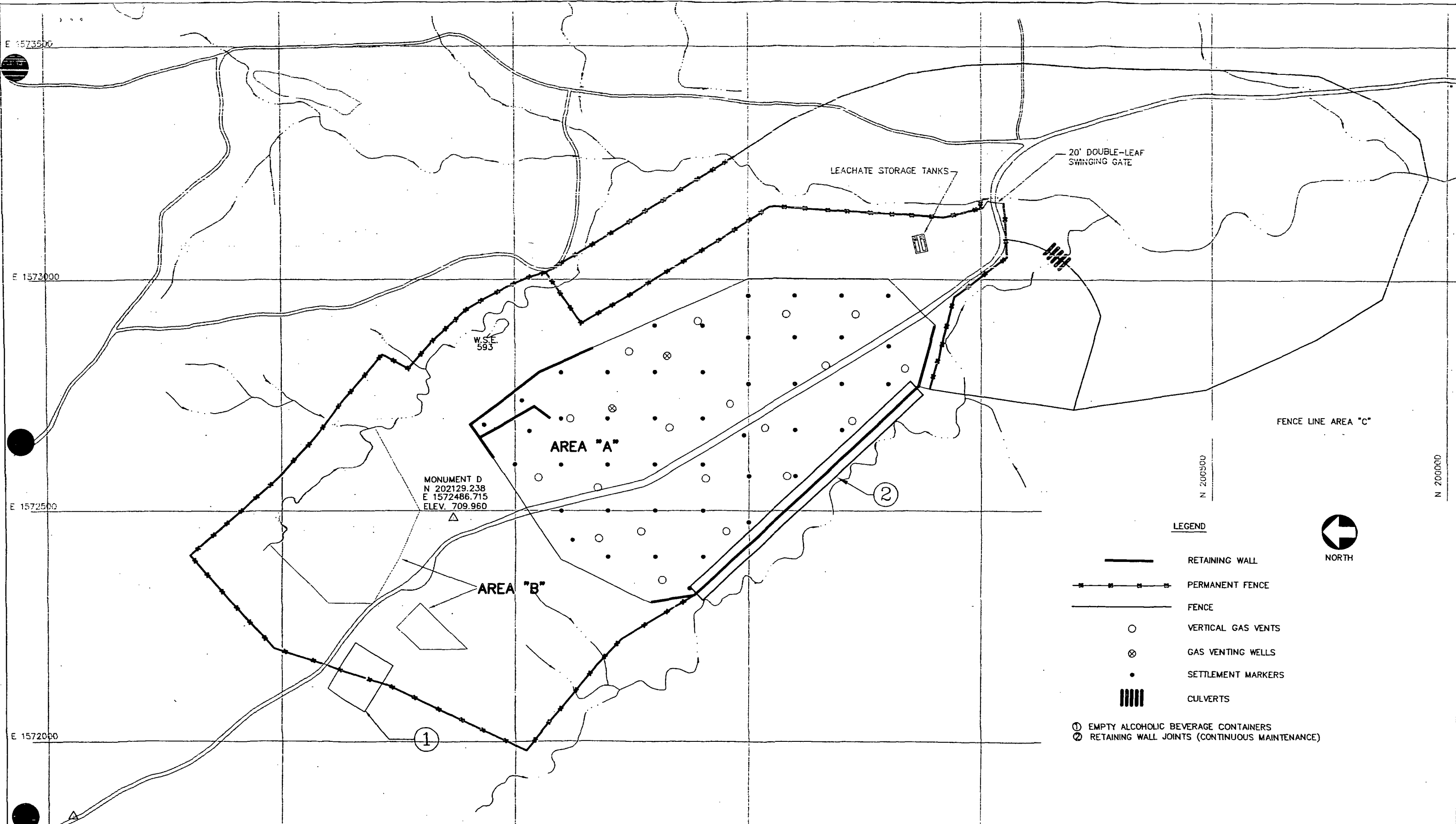
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009



LEGEND

- RETAINING WALL
- PERMANENT FENCE
- FENCE
- VERTICAL GAS VENTS
- GAS VENTING WELLS
- SETTLEMENT MARKERS
- CULVERTS
- ① EMPTY ALCOHOLIC BEVERAGE CONTAINERS
- ② RETAINING WALL JOINTS (CONTINUOUS MAINTENANCE)

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED	E.TAYLOR
DRAWN	G.HAYS
CHECKED	E.TAYLOR
IN CHARGE	D.DUNCAN
DATE	1/9/06

SMITH'S FARM
OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
4th QUARTER 2005

SCALE 1"=200'			
PROJECT NO. 6311-03-0004			
DWG NO.	REV.	FIGURE	
		2	
CADD FILE: 130041-ATL01R.DWG 1-10-06		PLOT DATE: 1/10/06	

➤ **QUARTERLY INSPECTION REPORT (FORM QIR)**

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map	<u>Yes</u> No	Observed lots of empty alcoholic beverage containers and four wheeler erosion after weekends at North gate. ➤ Continuing to address this issue with trespassers
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? Yes, describe the type of erosion (rills, dimensions (length, width, depth) and indicate location(s) on a map attached.	<u>Yes</u> No	Very small areas have occurred (6"x 6"). ➤ The remaining fence perimeter is very difficult to access, still continuing to repair, as needed.

2. Area "B"

Is erosion evident? If yes, describe the type of erosion (rills, gullies, valleys, slope failure), record general measurements (depth, width, length), and indicate locations of erosion on a map attached.	<u>Yes</u> No	Several small areas have occurred, no erosion is greater then 6"x 6" in size. ➤ Continuing to repair, as needed.
--	---------------	---

RCRA Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record general measurements (depth, width, length) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken, shoved, moved) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. RCRA Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Gas Collection System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	
--	---------------	--

Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
--	---------------	--

5. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	<u>Yes</u> <u>No</u>	
--	----------------------	--

5. **Surface Water Drainage and Erosion Control System (continued)**

Questions	Response	Comments and Recommendations
Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is settlement or standing surface water evident If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

6. Retaining Walls

Questions	Response	Comments and Recommendations
Is joint leakage evident? If yes, describe the type of leakage (dripping, flowing, streaming, gushing); record color, scent, viscosity of fluid leaking; and indicate location(s) of leakage on a map attached.	<u>Yes</u> No	All joints needs continuing quarterly maintenance due to small voids observed. Voids are being repaired with rubber sealer compound, mostly on the surface.

Is surface damage evident? If yes, describe the type of damage (spalling, cracking, alligator cracking, exposed steel reinforcement, joint separation, joint faulting), record general measurements (depth, width, length, surface area), and indicate location(s) of damage on a map attached.	Yes <u>No</u>
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7. Leachate Collection System

Are any manholes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) single overflow) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/9/06
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Are any pipes leaking? If Yes, describe the magnitude of the leak (dripping, flowing, streaming, gushing) and indicate location(s) of leaky Manholes on a map attached.	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06
--	---------------	--

8. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Many areas have alligator cracking. No large areas noted.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders or slopes? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	

8. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident in soil ditches? If Yes, describe the ditch inspected, type of erosion (meandering, out of alignment), and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Do soil ditches need cleaning? If Yes, describe the type of cleaning required.	Yes <u>No</u>	

9. Leachate Storage Tanks

Is settlement around storage area evident? If yes, rate the degree of settlement (minor, mild, major, catastrophic) record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>
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9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Is erosion evident? If yes, describe the type of erosion (gullies valleys, washouts), record general measurements (depth, width, length) and indicate location(s) on a map attached.	Yes <u>No</u>	
Are surface drainage obstructions evident? If yes, describe the type of obstacles(s) encountered (leaves, limbs, trash, silt) and indicate location(s) of obstacles on a map attached.	Yes <u>No</u>	
Is the tank leak detection system okay? If no, describe the problem(s) with the system.	<u>Yes</u> No	Annual inspection. Last Inspected 1/09/06
Is liquid present in secondary containment space?	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06
Are one or both of the Tanks leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record which tank is leaking, and where the leak(s) is/are taking place	Yes <u>No</u>	Annual inspection. Last Inspected 1/09/06

9. Leachate Storage Tanks (continued)

Questions	Response	Comments and Recommendations
Are any valves leaking? If Yes, describe the type of leak(s) (dripping, flowing, streaming, gushing), record the type of valve leaking, and describe where is the system the leak is occurring.	Yes <u>No</u>	

Is damage evident? If Yes, describe the damaged component (reinforced concrete pad, manhole cover, control panel, guard post) and the type of damage encountered.	Yes <u>No</u>	
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INSPECTOR

REVIEWED BY:

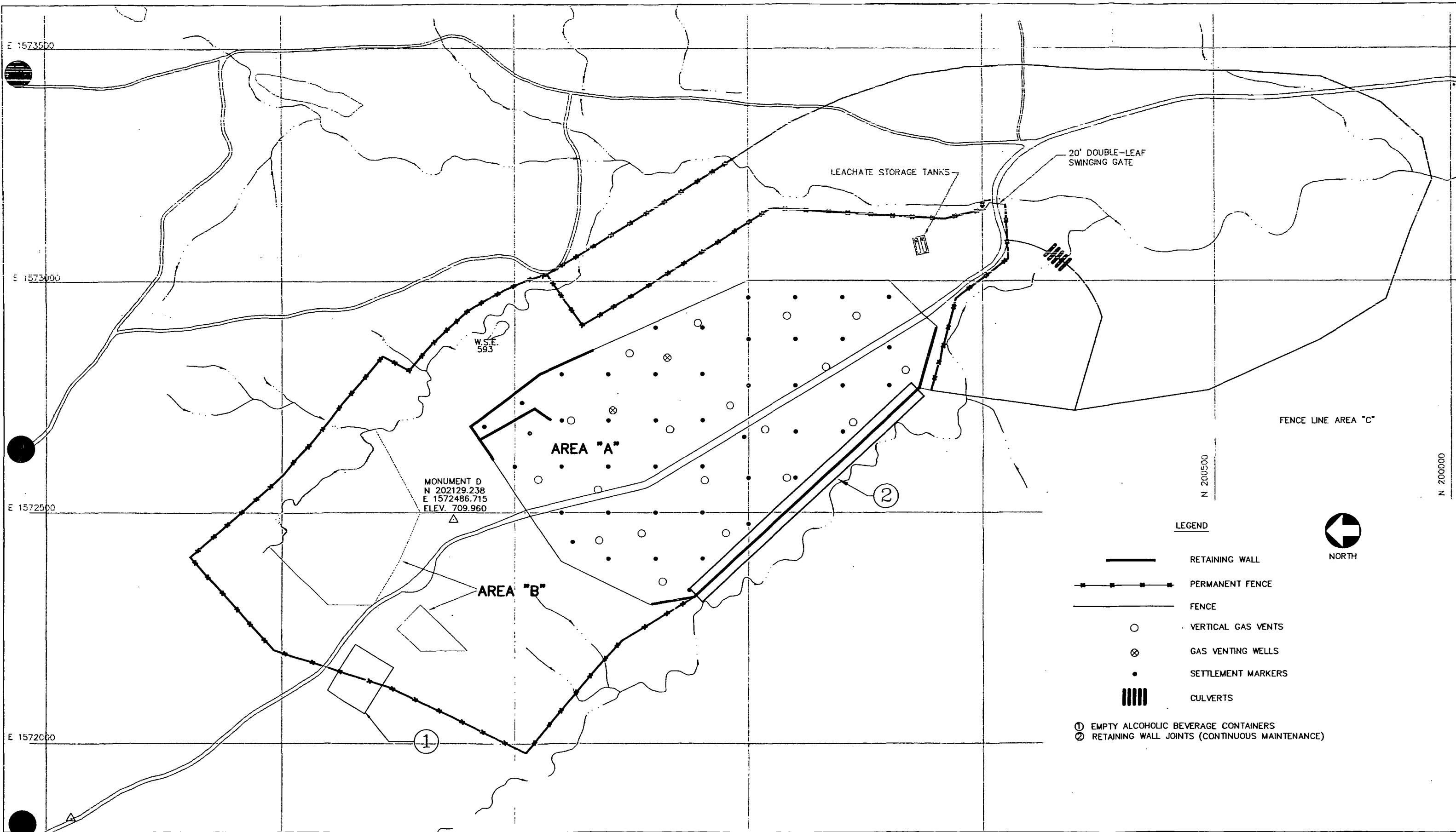
Ebbert B. Taylor
Typed or Printed Name

Ebbert B. Taylor
Signature

Dean A. Duncan, P.E.
Typed or Printed Name

Dean A. Duncan
Signature

Kentucky P.E. No. 16009



REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED
E.TAYLOR
DRAWN
G.HAYS
CHECKED
E.TAYLOR
IN CHARGE
D.DUNCAN
DATE
1/9/06

SMITH'S FARM
OPERABLE UNIT ONE
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
4th QUARTER 2005

SCALE
1"=200'
PROJECT NO.
6311-03-0004
DWG NO. REV. FIGURE
2

CADD FILE:
030004_0110_01.dwg
PLOT DATE:
1/10/06

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response		Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes	<u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than 1/4 of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response		Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response		Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	<u>Yes</u>	No	Have repaired many separate sections of downdrains where rodents have eaten through the downdrain membrane and water was going underneath the down drain membrane. ➤ Still an on going problem, checking every quarter for new rodent holes in downdrain membranes.
Is sediment deposited in drainage channels or culverts deeper than ¼ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes	<u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes	<u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
--	---------------	--

➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>	
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Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes <u>No</u>	Extraction well screens may be clogged, leachate volume is down.
--	---------------	--

➤ Same as last Quarter

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response		Comments and Recommendations
Is standing water present? If Yes, describe.	Yes	<u>No</u>	
Is debris or trash present? If Yes, describe.	Yes	<u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u>	No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes	<u>No</u>	

7. Access Roads

Questions	Response		Comments and Recommendations
Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.	<u>Yes</u>	No	Alligator cracking evident at various locations along access road. ➤ Same as last quarter.
Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	

7. Access Roads (continued)

Questions	Response	Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u> No	

8. General Comments or Observations

INSPECTOR

Ebbert E. Taylor

Typed or Printed Name

Ebbert E. Taylor
Signature

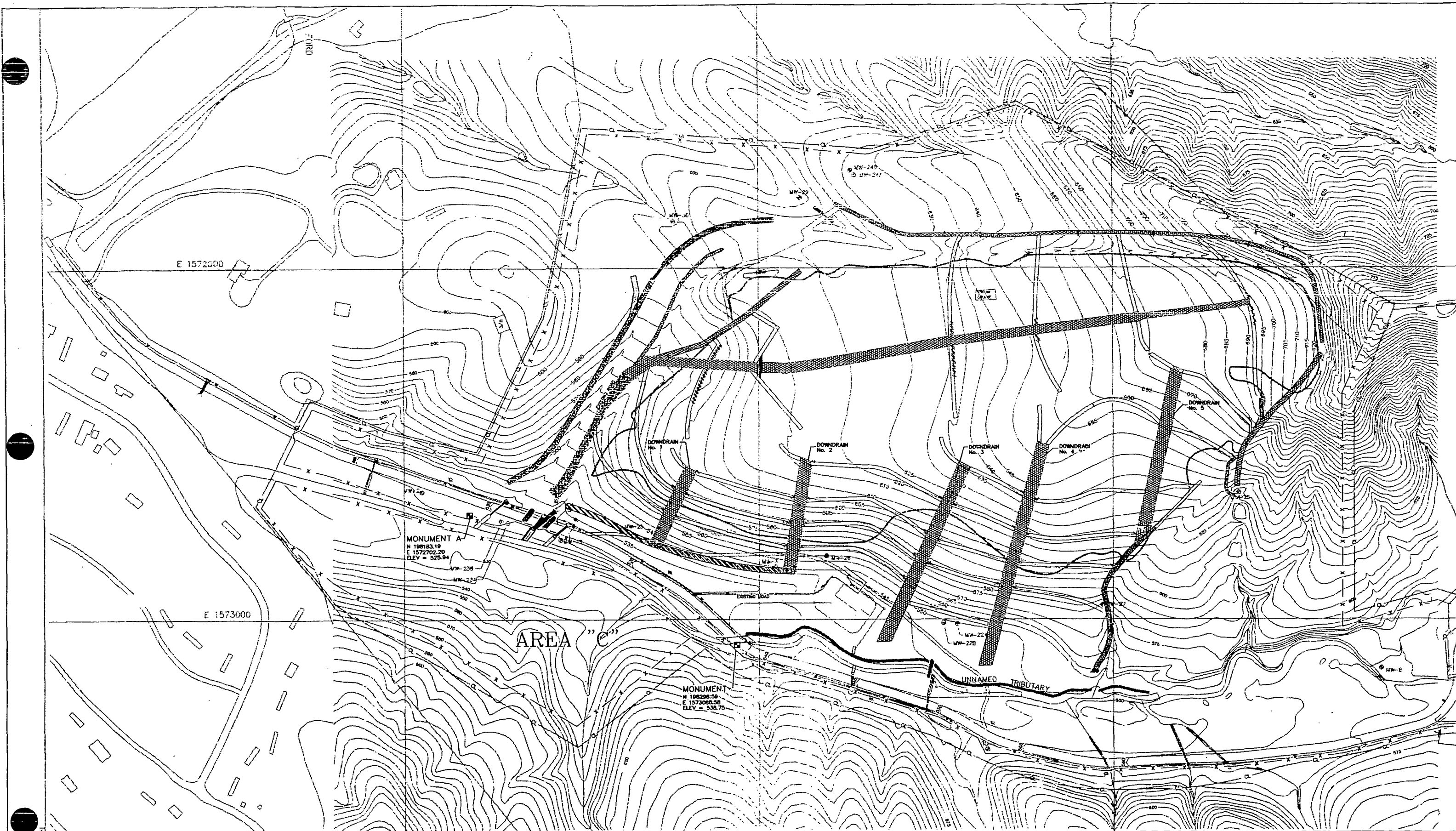
REVIEWED BY:

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan
Signature

Kentucky P.E. No. 16009



REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED E.TAYLOR
DRAWN G.HAYS
CHECKED E.TAYLOR
IN CHARGE D.DUNCAN
DATE 1/9/06

SMITH'S FARM
OPERABLE UNIT TWO
BULLITT COUNTY, KENTUCKY

MACTEC
13425 Eastpoint Centre Drive, Ste 122
Louisville, KY. 40223
Phone: 502-253-2500 Fax: 502-253-2501

OPERATIONS AND MAINTENANCE
QUARTERLY REPORT
4th QUARTER 2005

SCALE 1"=250'		
PROJECT NO. 6311-03-0004		
DWG NO.	REV.	FIGURE
		1
CAAD FILE: BULLITT_03_0004_11-06.dwg		PLOT DATE: 1/10/06

QUARTERLY INSPECTION REPORT (FORM QIR)

1. Security Fence

Questions	Response	Comments and Recommendations
Is damage evident? If Yes, describe the type of damage(s), and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are warning signs missing or damaged? If Yes, describe the type of damage and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is erosion evident under chain-link sections or around posts? If Yes, describe the type of erosion (rills, gullies, valleys, washouts), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Has failure of any fencing members occurred? If Yes, describe the failure(s) and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap

Questions	Response	Comments and Recommendations
Is settlement or standing water evident? If Yes, describe the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Have settlement monuments been disturbed? If Yes, describe the type of disturbance (missing, overturned, leaning, broken) and indicate disturbed monument(s) on a map attached.	Yes <u>No</u>	
Is erosion evident? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
Is vegetation distressed or are bare areas evident? If Yes, describe the type of disorder (distressed, sparsely vegetated, bare), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

2. Landfill Cap (continued)

Questions	Response	Comments and Recommendations
Is any other damage evident? If Yes, describe the type of damage(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of terraces? Outlets from terraces? Channels? Channel Outlets? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	Yes <u>No</u>	
Is sediment deposited in drainage channels to a depth greater than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings)? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

3. Gas Control System

Is damage evident? If Yes, describe the type of damage (vent/well riser cover missing, vent/well riser cracked, overturned, leaning, broken) and indicate damaged gas vent/well riser(s) on a map attached.	Yes <u>No</u>	Many vent/well risers are leaning slightly, will continue to monitor.
		➤ Condition is same as last quarter.

3. Gas Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the degree of settlement(s)(slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System

Is overall shape, configuration, and alignment of the drainageway as shown on the drawings? If No, describe the type of distortion (damaged, eroded, slope failure), record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	
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Is erosion evident? If Yes, describe the drainage structure inspected (channel, culvert, outfall, gabions), the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.	Yes <u>No</u>	
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4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Is settlement or standing surface water evident? If Yes, describe the drainage structure inspected, the degree of settlement(s) (slight, moderate, significant), record approximate dimensions, and indicate the location(s) on a map attached.	Yes <u>No</u>	
Are obstruction(s) (brush, debris, timber leaves, sediment) interfering with the proper functioning of drainageway or the stability of adjacent embankments? If Yes, describe the type(s) of obstruction(s) and indicate the location(s) on a map attached.	<u>Yes</u> No	<p>Have repaired many separate sections of downdrains where rodents have eaten through the downdrain membrane and water was going underneath the down drain membrane.</p> <p>➤ Still an on going problem, checking every quarter for new rodent holes in downdrain membranes.</p>
Is sediment deposited in drainage channels or culverts deeper than $\frac{1}{4}$ of the original channel depth (shown on the contract drawings) or culvert diameter? If Yes, record approximate dimensions and indicate locations on a map attached.	Yes <u>No</u>	
Is structural damage evident? If Yes, describe the type of damage (upheaval, cracking, undermined, overturned, fractured, broken) and indicate damaged structure(s) on a map attached.	Yes <u>No</u>	

4. Surface Water Drainage and Erosion Control System (Continued)

Questions	Response	Comments and Recommendations
Have stones been dislodged at rip rapped drainage outlet aprons? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes <u>No</u>	

5. Leachate Collection System

Are any Manholes leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	<u>Yes</u> No	Manholes for extraction wells 1, 4, and 5 periodically contain standing water due to rain infiltration and are pumped out.
--	---------------	--

➤ Manholes are checked every heavy rain fall.

Are any pipes or valves leaking? If Yes, describe the magnitude of the leak (drip, steady discharge, single overflow) and indicate location(s) of leaky Manholes on an attached map.	Yes <u>No</u>
---	---------------

Are leachate extraction well pumps operating properly? If No, describe the malfunction and indicate the extraction well number.	Yes <u>No</u>	Extraction well screens may be clogged, leachate volume is down.
--	---------------	--

➤ Same as last Quarter

5. Leachate Collection System (continued)

Questions	Response	Comments and Recommendations
Is damage or degradation evident at these system components?		
Leachate Extraction Well Manholes?	Yes <u>No</u>	
Extraction Well Pumps and associated Piping?	Yes <u>No</u>	
Leachate Junction Manhole?	Yes <u>No</u>	
Leachate Lift Station and Lift Station Pump?	Yes <u>No</u>	
Leachate Detection Points?	Yes <u>No</u>	
Leachate Collection Pipe Cleanouts and Vents?	Yes <u>No</u>	
Is Leachate Evident in any of the Leachate Detection Points? If yes, indicate which one(s).	Yes <u>No</u>	

6. Infiltration Gallery

Questions	Response	Comments and Recommendations
Is standing water present? If Yes, describe.	Yes <u>No</u>	
Is debris or trash present? If Yes, describe.	Yes <u>No</u>	
Are strong odors present? If Yes, describe.	<u>Yes</u> No	Most well areas have distinctive odors. ➤ Same as last quarter.
Is the 6-inch diameter perforated HDPE at the infiltration gallery obstructed? If Yes, describe the magnitude of the obstruction (75% blocked, 50% blocked).	Yes <u>No</u>	

7. Access Roads

Questions	Response	Comments and Recommendations
<p>Is pavement distress evident? If Yes, describe (cracking, pothole(s) upheaval, failed patch), record the approximate dimensions (length, width, and depth), and indicate location(s) on an attached map.</p>	<p><u>Yes</u> No</p>	<p>Alligator cracking evident at various locations along access road.</p> <p>➤ Same as last quarter.</p>
<p>Is erosion evident on shoulders embankments, or drainage ditches? If Yes, describe the type of erosion (rills, gullies, valleys, washouts, slope failure), record approximate dimensions (length, width, depth) and indicate location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are culverts damaged? If Yes, describe the culvert inspected, conditions observed (spalling, cracking, exposed reinforcement, joint separation) and indicate location(s) of impacted culvert(s) on a map attached.</p>	<p>Yes <u>No</u></p>	
<p>Are obstructions present in the culverts or impacting the stability of adjacent embankments? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.</p>	<p>Yes <u>No</u></p>	

7. Access Roads (continued)

Questions	Response		Comments and Recommendations
Is sediment deposited in culvert(s) deeper than $\frac{1}{4}$ of the culvert diameter? If Yes, record approximate dimensions and indicate location(s) on a map attached.	Yes	<u>No</u>	
Are obstructions present in the drainage ditches adjacent to the road shoulders? If Yes, describe the obstacle(s) (leaves, brush, debris, timber, sediment), and indicate the location(s) on a map attached.	Yes	<u>No</u>	
Is road access to OU2 and the treatment plant safe and efficient?	<u>Yes</u>	No	

8. General Comments or Observations

INSPECTOR

REVIEWED BY:

Ebbert B. Taylor

Typed or Printed Name

Ebbert B. Taylor

Signature

Dean A Duncan, P.E.

Typed or Printed Name

Dean A Duncan

Signature

Kentucky P.E. No. 16009

Appendix F

Smith's Farm Superfund Community Fact Sheet



SUPERFUND FACT SHEET

Smith's Farm Site

Brooks, KY

Region 4

June 2006

This fact sheet is not to be considered a technical document but has been prepared to provide the general public with a better understanding of activities that have been occurring at the Site. For technical information, please review documents in the Information Repository.

PURPOSE

The purpose of this fact sheet is to explain the 5-year review process as well as clarify both the legal and health related consequences related to trespassing on the Smith's Farm Superfund site.

SITE HISTORY

Between 1950 and 1989, the Smith's Farm property was used as both a permitted and unpermitted disposal area for industrial and commercial wastes. The site was placed on the National Priorities List (NPL) in 1986, qualifying it for clean-up by the US EPA. Clean-up activities included transporting the most hazardous materials off-site and containing remaining wastes under an EPA approved cap consisting of synthetics liners, clay, several feet clean soil and vegetation to prevent soil erosion. Ongoing activities include collecting and treating leachate from the landfill and installing fences, gates and warning signs.

5-YEAR REVIEW

According to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous

Substances Pollution Contingency Plan (NCP), remedial actions which result in any hazardous substances, pollutants, or contaminants remaining at the site must be reviewed every five years to ensure protection of human health and the environment. The 5-year review process involves inspecting the site, reviewing site documents and data and conducting interviews. EPA is currently conducting second 5-year review for the Smith's Farm site. The first 5-year review can be found at: <http://www.epa.gov/superfund/sites/fiveyear/f01-04008.pdf> or call (404)562-8821 to request a paper copy.

TRESPASSING

Although EPA has declared the Smith's Farm remediation fully "protective of human health and the environment," contamination does still exist on the site. While the site poses little risk to the surrounding community, trespassing on the site can damage the cap and greatly increases the risk of exposure to contamination. For this reason, trespassing on the site can lead to serious health and legal issues for both the trespasser and the community.

HEALTH ISSUES

As stated above, contamination does remain on the Smith's Farm site. Contaminants on site include:

- Volatile Organic Compounds (VOCs),
- Metals (including lead),
- Polychlorinated Biphenols (PCBs),
- Polycyclic Aromatic Hydrocarbons (PAHs), and
- Pesticides

Health effects related to these contaminants include:

- Damage to the brain, heart, liver and kidneys
- Birth defects
- Skin damage
- Nervous system damage
- Cancer

Exposure to these contaminants can occur through contact with contaminated soil or leachate. Since completion, the cap has been continuously monitored to ensure that it adequately protects the communities surrounding the site from risks mentioned above. However, trespassing on the site greatly increases one's risk of exposure and the associated health problems.

In addition, many activities related to trespassing, including vandalism and driving off-road vehicles, have the potential to damage the remedy. Damage to the landfill cap, gas vents, wells or any other part of remedy interferes with the ability of the remedy to adequately protect the surrounding community from the risks listed above.

LEGAL ISSUES

The Smith's Farm Superfund site is private property and as such, any unauthorized activities on the site are illegal and punishable by law.

Conclusion

Due to the reasons mentioned in this fact sheet, trespassing on the Smith's Farm site is illegal and dangerous. Please be aware of dangers associated with illegally entering the site and think before you put yourself and your community at risk.

FOR MORE INFORMATION

If you would like more information or would like to talk about the Site, please contact the following:

Mr. Clark Rushing
Remedial Project Manager
Phone: 404-562-8821

Mr. Eddie Wright
Public Affairs Specialist
Phone: 404-562-8669

Or visit the Smith's Farm Information
Repository at:

Ridgeway Memorial Library
2nd and Walnut St.
Shepherdsville, KY 40165

